

HP Professional

THE INDEPENDENT MAGAZINE FOR NEWWAVE COMPUTING ▲ VOL.6 NO.8

AUGUST 1992 ▲

NEW WAVE

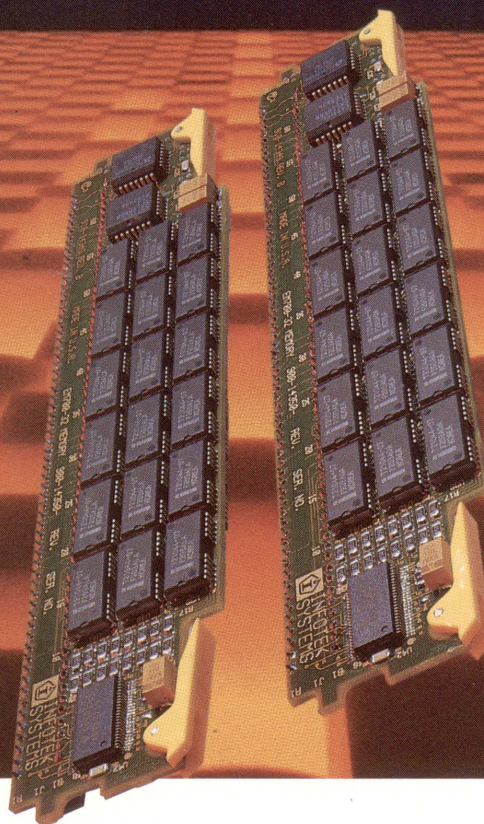
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- Broad Selection
Of CASE Tools
Warrants Careful
Shopping
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HP's GlancePlus/UX
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To Succeed
President And
CEO John Young
- DP Labs Update
On Open Systems
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AUGUST 1992

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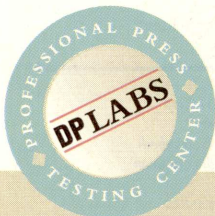
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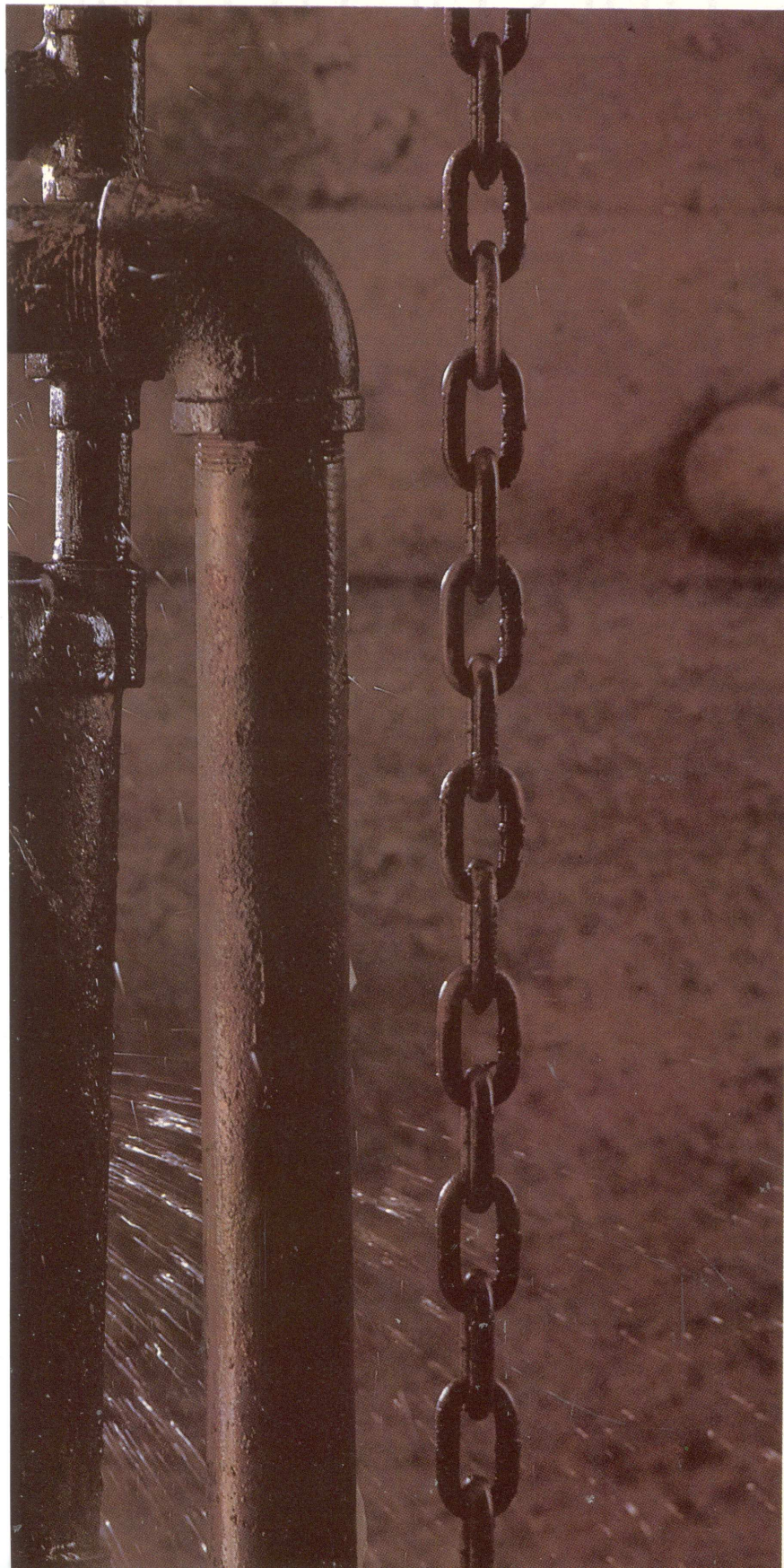
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All The News That's Fit To Print



By Grant Evans

As I'm sure most of you know, I've lifted the above title from the most-repeated/copied/paraphrased tag line in newspaper history. (For the rest of you, it's from New York Times.) This month, I'll mutate it to reflect the abundance of news that has come our way in recent weeks: All the news that fits, we print.

I shouldn't be surprised by the amount of news pouring into my in-bin lately — after all, this is our INTEREX show issue. But it sure is tough trying to make all those pieces fit into one issue — in fact, it's *impossible* to cram them all in there. And that fact is not limited to show issues. In the nine months that I've edited this magazine, we've never been short on new developments to cover.

A few major HP developments didn't make it into this month's *News & Trends* section, so I thought I'd touch on them briefly in this space.

Last month, HP introduced an enhanced version of its ALLBASE/SQL RDBMS. Version F.0 is designed to service main-frame-class workloads in data-center environments — furthering HP's recent push into the glass house. Version F.0 boasts 30 percent better performance, record-level locking, concurrent B-trees, unattended backup, throttle-wait queue and shadowing.

In June, HP rolled out a set of Integrated Services Digital Network (ISDN) connectivity products for the HP Apollo 9000 Model 720, 730 and 750 workstations. The HP ISDN Link/700 allows standalone workstations to communicate over public or private ISDN networks to other geographically distributed systems. The HP ISDN Link/S700.

On the 3000 side, HP implemented a new two-tiered distribution system. HP has selected Distribution Resources Company (DRC) to sell and service HP 3000 systems to smaller resellers who were excluded from the previous distribution channels. This provides HP a way to access smaller VARs who in turn can resell the system at a better price than some larger VARs.

There, I think I covered all the bases.

One last thing: This is my last issue as editor of *HP Professional*. I'm moving on to the big, bad world of marketing with a third-party in the DEC, HP, IBM and Sun markets. So while

I'm leaving Professional Press, I am lucky enough to stay in the markets I've come to know.

The hardest part is leaving an organization like Professional Press. It's been almost four years now since I came here as a news editor with *MIDRANGE Systems*, a fledgling IBM publication which has since become the premier publication in its market. The success of that magazine, like the success of *HP Professional* is no coincidence — it is a reflection of the dedication, professionalism and market knowledge of the publication's staff and the company's management. The same things are true with *DEC Professional*, the leading publication in the DEC market, and *LAN Computing*, which covers the ever-changing world of interoperability and standards.

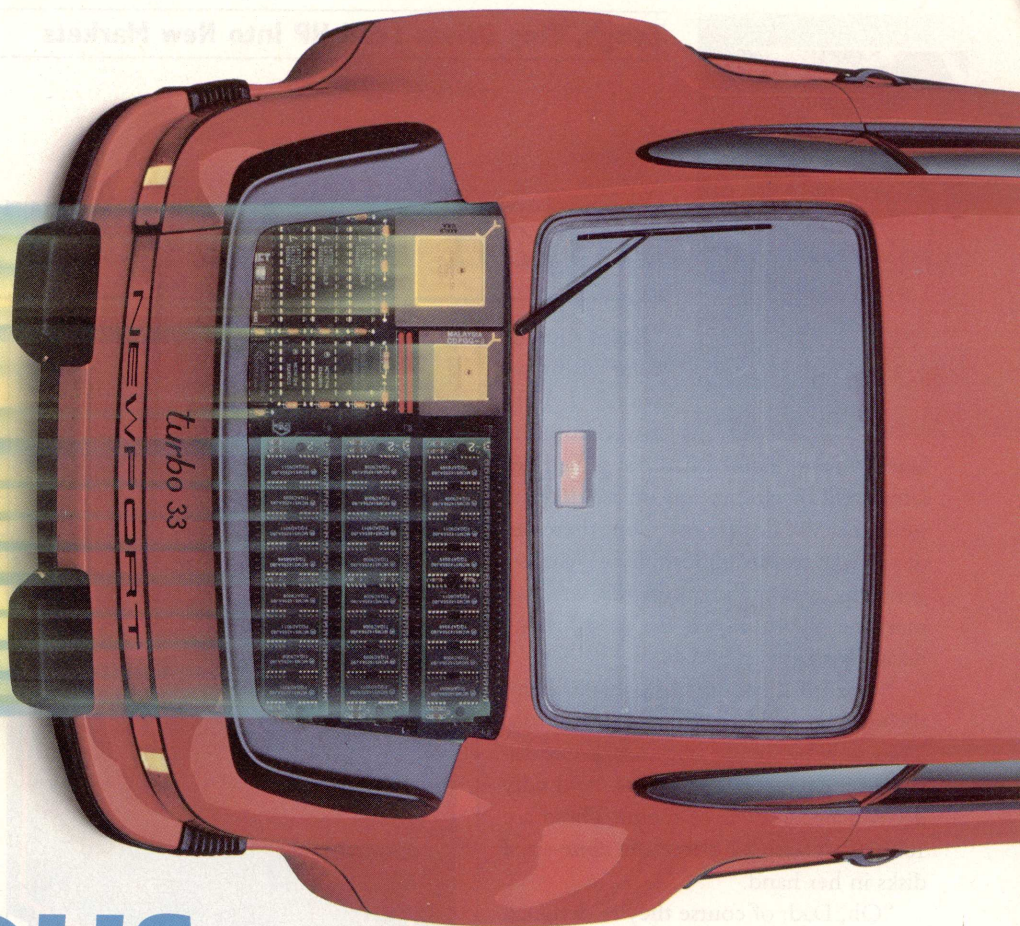
It goes to show that you don't have to be a giant company in order to put out the best publication — you just have to have the best staff. It's been a pleasure working in such an environment.

Hewlett-Packard has certainly gone out of its way to make my job easier. What a refreshing change of pace to cover a major computer manufacturer that invites you to its facilities to bring you up to speed on the latest developments. I'd like to thank Jim Christensen, Michele Pritchard, Melissa Calvo, Diane Dennis, Dave Kroll, Gayle Uchida, Emily Cobb and countless others (you know who you are) for keeping us well-informed so we can keep the *readers and users* well-informed.

Thanks again, it's been a blast.

Next month: Don Marks returns as Managing Editor of *HP Professional*.

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CIRCLE 246 ON READER CARD



INDUSTRY WATCH

Bill Sharp

laundry room door. I had just pulled her latest load of clothes out of the dryer. I insist that she do her own, but there are drawbacks to this philosophy — clothes generally end up soggy in the washing machine or wrinkly in the dryer, abandoned for days on end.

"You left them in your pockets again, through the washer and the dryer, too. They may be tough, but they're not designed for washers and dryers. And why do you need three of them? These are 100-GB capacity." I placed the dime-sized disks in her hand.

"Oh, Dad, of course they're designed for it," she chirped. "I've done it lots of times. And I need one for school work, one for letters and the third for music lessons. Can I have another one for my videos? I filled the last one. Thanks—loveyoubye!"

Actually, except for Kate, that was all pretend. You can't yet buy 100 GB on a dime-sized disk, and don't plan on leaving media in your pants pocket for disk cleaning for some time to come, either—but we are headed for much smaller, tougher drives.

In fact, tough, tiny drives are moving HP into entire new markets for rotating memory devices. This is part of a larger, general expansion of computer memory, as new combinations of technologies and reduced costs create opportunities to meet the burgeoning demand for ever-increasing memory capacities.

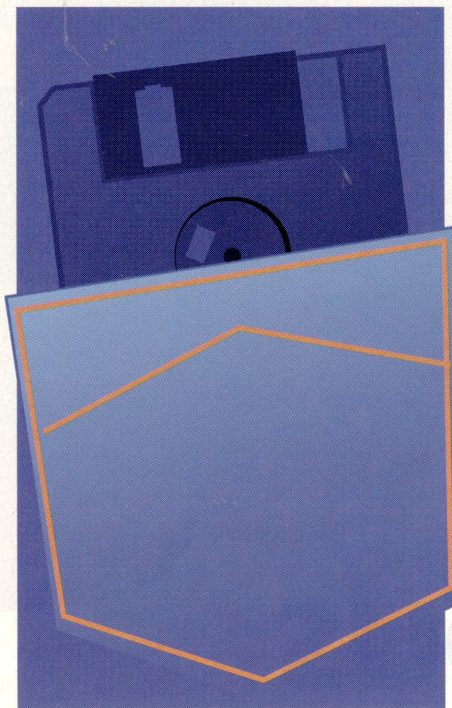
Storage Technology working with HP as a drive supplier, brought us automated tape cartridge libraries with high speed and vast capacity (IBM has since followed

Tough, Tiny Drives Lead HP Into New Markets

Small Package Truths

"Kate! Get in here right away," I bel-

lowed from the



suit). Memory cards equipped with new solid state memory are showing up in palmtop and laptop computers from HP and others.

Meanwhile, rotating memory devices simultaneously are growing in capacity and shrinking in physical size. They are continually getting smaller. First it was 3 1/2-inch, then 2 1/2, then 1 1/8, and now HP introduces 1 1/3-inch format. Why are disks getting smaller and smaller? Because they can, and because smaller disks can fit into many more devices and demand far less power to get the job done.

Determining Growth Rate

Why is HP making itty-bitty disk drives? Because it is doing well in its current memory markets and is planning for the next wave of computer memory expansion, says Jeff White, program marketing manager for HP's Disk Memory Divi-

sion, Boise, Idaho. "The disk drive industry grew at eight percent last year and we grew 50 percent. We are taking market share, but that is very difficult to do over the long term so we are looking to expand our offering and get into new businesses."

In determining the direction in which to grow, HP's memory folks studied all the markets that use or will soon use memory, says White. They discovered:

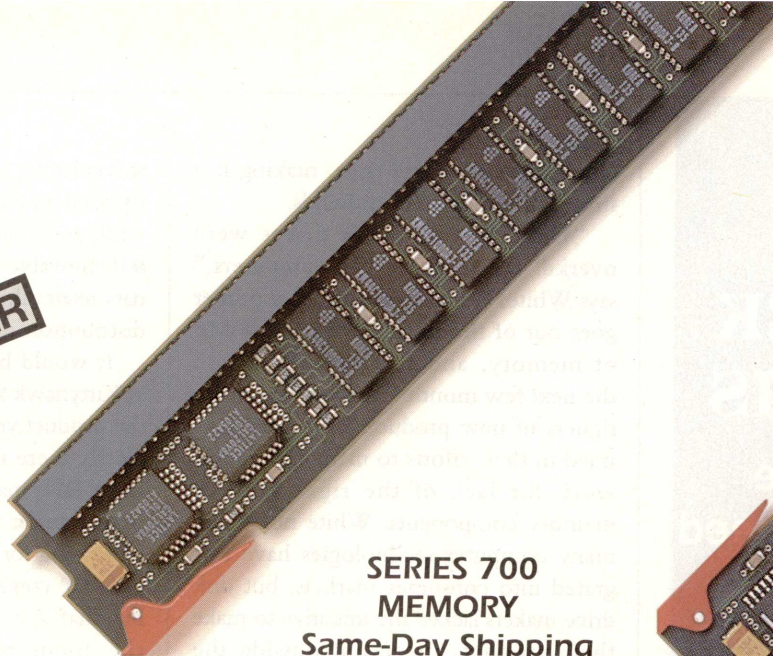
- The conversion of electronic products from analog to digital design continues, and as each product switches over, it inevitably becomes a market for microprocessors and memory, particularly low-cost memory.

- Copiers, printers, scanners and fax machines today are expanding their memory requirements at 50 to 100 percent per year, creating an exploding demand for small, low-cost and reliable memory.

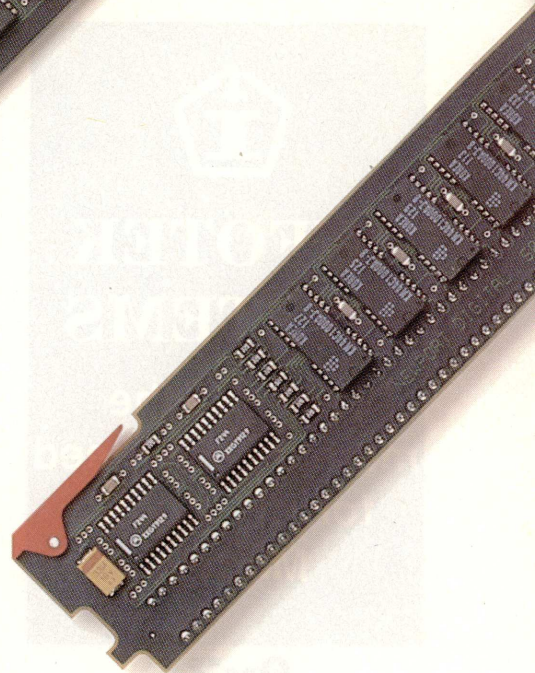
- Many new mobile products are reaching the market, including cellular phones, sub-notebook and pen-based computers, with more on the way. Each of them needs small, low-power reliable memory.

- Mass consumer (yes, consumer) markets for home entertainment, games and such will demand increasing amounts of memory, with an emphasis on modest cost and high reliability.

Interesting markets, great growth potential — but why market rotating disk drives when there are nifty technologies such as solid state and optical storage coming along? In short, says White, although the day of optical and solid state memory for mass use in many products will come, it is not here quite yet. Optical memory remains too slow for full interactive use, while solid state memory is still too costly for widespread use. Rotating media prices are still dropping rapidly, and reliability and capacity are



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HP-345/375/380				■	■		■	■
HP-360				■	■	■	■	
HP-362			■	■	■			
HP-382				■	■		■	
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HP-425E				■	■		■	
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HP-720/730/750							■	■

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climbing at the same time, making it a strong contender, HP contends.

"Until recently, disk drives were overkill for anything but computers," says White. "Now a personal laser printer goes out of the factory with 5 to 8 MB of memory, and that will double in the next few months." In fact, many designers of new products have been stymied in their efforts to make some ideas work for lack of the right kind of memory components. White notes that many computer technologies have migrated into consumer markets, but disk drive makers lacked the initiative to make their products successful outside the computer arena.

Enter HP Kittyhawk

Here are the basics:

HP's Kittyhawk Personal Storage Module

- 14 MB and 21.4 MB capacities.
- 2 by 1.44 by 0.4 inches (the size of a small matchbox).
- 1 ounce total weight.
- 5V power/Read: 1.5 W, Write: 1.7 W
- 100 g operating, 225 g nonoperating shock limit.
- Service life less than 5 years.
- \$450 per single unit, \$250 each OEM pricing.
- Available this fall.

HP is aggressively moving into relationships with other firms in the style of '90s technology. AT&T Microelectronics helped develop IC designs to keep the chip count to a fraction of that for other drives, and Citizen Watch Co., Ltd. will produce the drive in volume using its micro-manufacturing expertise. Engineers with several users for the drive were deeply involved in product development, and for some the design makes new products possible.

White is quick to point out that this disk drive design will make HP a supplier for many applications outside the typical uses for rotating drives, including:

- Data capture for medical applications such as mobile heart monitoring or fetal monitoring away from a hospital.
- Voice mail capability for cellular phones with local storage.

■ Replacing solid-state memory in peripheral devices and video game cards while reducing costs.

■ Removable memory modules for many data retrieval, security storage or software distribution.

It would be easy to look too closely at Kittyhawk and mistake its potential for the product you can see now, today. But clearly there is much more in the offering if HP's marketing successes of recent years transfer well into this new arena.

Pricing for this product is too high to give HP command of memory markets, but that is no surprise to HP. For now, the focus as the product gets off the ground will be specialty applications where only one 20-MB drive is needed and the price is a good match. As production volume rises, the price will drop and memory capacity will grow for this mini-drive — then the market will take off.

Imagine a disk array that fits in a notebook computer — a Storage Tek Iceberg array the size of several ice cubes. Think about your PC or workstation getting a whole lot smaller as both screens and disk drives shrink in the next several years.

Computer chips already are moving into a great many products in almost every market you care to name—and memory components are getting ready to do the same. Disk drive memory has not sold widely outside the computer market because no manufacturer has focused on the needs of markets that might use this kind of memory — HP is now doing the work, and may reap the rewards if they can stay ahead of competitors.

If HP can move effectively into low-end memory markets with Kittyhawk's small and rugged design, it will be in a fine position to grow with the marketplace as designs for solid state memory drop into a price range that is competitive — in that arena as well HP has large investments in technology R&D.

Kittyhawk is taking off and HP memory fortunes, already lofty, may fly very high indeed. ■

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Lew Platt Appointed New HP President And CEO

John Young And Dean Morton Announce Retirement; Wim Roelandts Succeeds Platt As Head Of CSO

In a long-anticipated move, HP's board of directors selected Lew Platt, currently executive vice president and head of the Computer Systems Organization, to succeed John Young as the company's president and chief executive officer. Young announced on July 16 that he will retire October 31 of this year, after 14 years at the helm.

Dean Morton, HP's chief operating officer for the last eight years, also announced his retirement effective October 31. Morton's duties, which included analysis of HP's international business processes and management of the company's quality programs and environmental initiatives, will be divided between Platt and his executive staff. Both Young and Morton will resign from HP's board of directors where they will be replaced by Platt and Dick Hackborne—the man who pioneered HP's marketing strategy for the phenomenally successful LaserJet printer.

Platt, 51, is only the second president and CEO since Bill Hewlett and Dave Packard ceased running day-to-day operations of the company in 1978. He has been with HP for 26 years, holding leadership positions in the company's medical, manufacturing and computer systems businesses.

Most recently, Platt presided over HP's transformation into a more flamboyant and price-competitive player in enterprise computing markets. Undertaking a high-profile crusade to promote HP's PA-RISC product strategy, Platt proudly heralded the company's aggressive introduction of industry-leading workstations and multiuser business systems. Many HP users will recall Platt's keynote address at the 1991 INTEREX/ADUS conference when he enthusiastically embraced one analyst's observation that HP engineers were turning out new technologies like "middle-aged boy scouts on a rampage."

Wim Roelandts will assume most of Platt's former



Lew Platt replaces retiring John Young as HP President and CEO.

responsibilities as leader of the CSO. Roelandts' role as vice president and general manager of HP's networked systems group has garnered wide acclaim from both industry analysts and HP customers. HP insiders assume Roelandts will continue the CSO's recent history of rapid-fire product introductions and hard-hitting marketing campaigns.

Young leaves the company operating at its peak performance. During his reign, HP's overall annual revenues have grown by a factor of 10 and its computer business has expanded from 42 percent of revenue to 70 percent. Much of HP's suc-

cess in the RISC minicomputer and workstation markets has come at the expense of Digital and IBM.

Co-founder Dave Packard, who remains at the head of HP's board of directors, was quick to thank Young for his contributions to the company. "HP's fundamental management principles and core values have thrived under his leadership. John leaves the company with record profitability in the first half of 1992, a strong product portfolio and a talented management team to lead HP for years to come."

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HP Bolsters SoftBench

Development Line Expanded To Address Complexity And Process-Management Issues

HP recently reinforced its SoftBench application development framework with the introduction of new products and services designed to reduce programming complexity, simplify process management and automate and manage software changes.

SoftBench 3.0 and C++ SoftBench 3.0 are distributed code-construction environments that include building, debugging and editing tools that reduce development time.

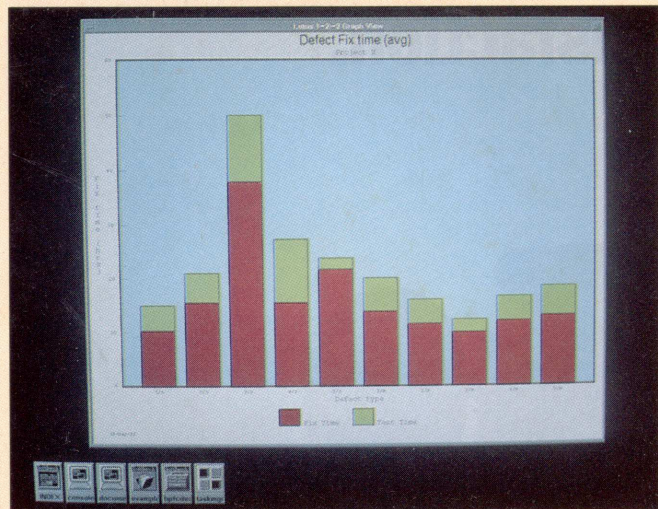
According to Dennis Vetter, product marketing manager with HP's Software Engineering Systems Division (SESD), SoftBench 3.0 and C++ SoftBench 3.0 offer development teams and individual programmers such benefits as: support for key features of C++ 3.0; improved visualization through three new graphical browsers; reduced application link time for increased programming performance; an enhanced ability to merge concurrently developed versions; integrated support of the vi and emacs editors; and an on line interactive training option.

To help automate and manage the process of handling software change requests on UNIX-based systems, HP introduced ChangeVision for SoftBench. According to HP, ChangeVision represents the first software development environment that helps developers define, automate and measure

the processes they use to change software. Based on the SoftBench framework, ChangeVision is designed for use by developers who change new or existing software to eliminate defects, add new functionality or port the software to another platform. HP is offering two workshops to help customers gain the maximum benefits from ChangeVision.

HP's new SynerVision for SoftBench enables users to construct computer-aided process-management environments with a series of electronic templates. According to HP, environments can be implemented to help manage a variety of processes, including those found in business, engineering and manufacturing.

In addition to the Soft-



HP's ChangeVision is the first process-management environment for software development.

Bench product additions, HP announced that it will license its SoftBench Broadcast Message Server technology to software suppliers who want to develop integrated software environments outside of the CASE industry. The Broadcast Message Server, the core of HP's SoftBench CASE

technology, communicates among software applications in heterogeneous environments. It runs on UNIX-based workstations, multi-user systems and on non-UNIX platforms from HP, DEC, IBM, MIPS, Sequent and Sun.

HP To Acquire TI's UNIX Business

Pact Extends HP's Presence In The Multiuser UNIX Market

HP and Texas Instruments (TI) signed a letter of intent for HP to buy TI's worldwide Computer Systems and Services business in a deal to be wrapped up this fall.

The proposed deal would give HP TI's 68000-based 1500 family of commercial UNIX-based multiuser systems, but does not include other TI Information Technology Group businesses. The addition of the TI line, and its associated VARs, provides HP with

additional leverage to penetrate new markets, according to Lew Platt, HP executive vice president and head of the Computer Systems Organization.

As part of the transaction, HP will assume responsibility for providing service for all equipment previously supported by TI. HP has stated that it will continue to offer TI's systems as long as the market demands. Industry watchers note, however, that HP intends to migrate the TI

1500 user base to HP 9000 Series 800 HP-UX systems.

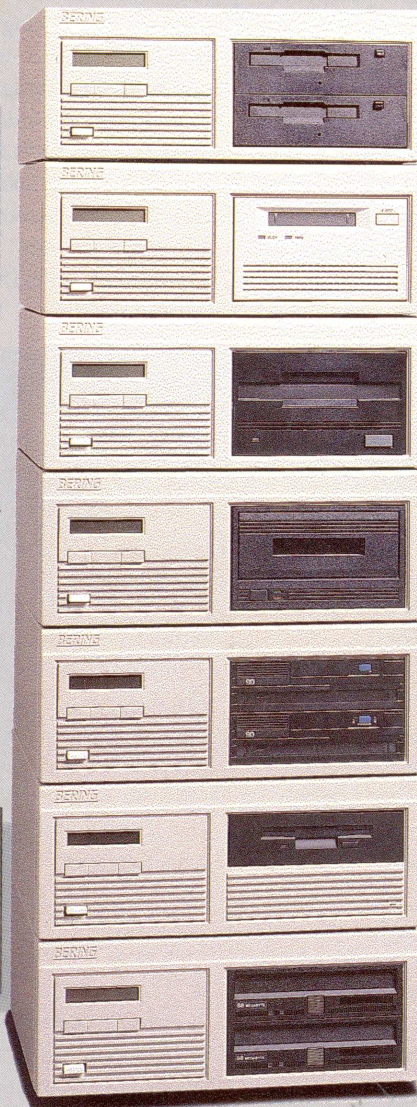
HP has stated that it plans to take on approximately 450 of the 1,600 employees in TI's Computer Systems and Services group — mainly those in field and customer service positions. Some of the remaining employees will be part of the transition team, and some will find work elsewhere within TI.

Terms of the pending transaction were not disclosed.

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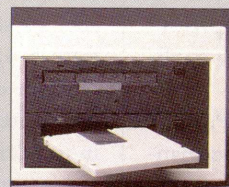
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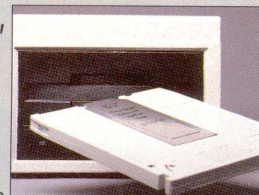


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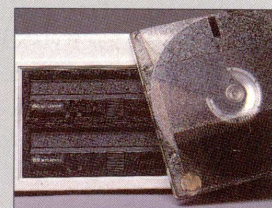


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"Near-Bullet-Proof " Version Of MPE/iX Introduced

Version 4.0 Of Operating System Addresses High-End Customer Needs

HP last month rolled out the latest version of its MPE operating system for the HP 3000 family of midrange systems. The new version boasts a number of what HP terms "near-bullet-proof" qualities to data-center application needs.

According to Patrick Adamiak, product line manager, General Systems Division, the enhancements in the areas of high availability, data integrity, and quick recovery from system failure are a result of customer requirements

for additional high-end and mainframe functionality on the HP 3000.

Version 4.0's increased software resiliency minimizes down time and recovery time after a system failure. Another feature, aggregate parallel recovery, enables system and user volumes to be recovered in parallel rather than in a serial manner. This decreases the time required to boot-up the system. According to Adamiak, the new high-reliability features of Version 4.0 are a nice complement to the disaster-tolerant capabilities

currently provided through Quest Software's Netbase.

MPE/iX networking capabilities have been enhanced to include additional multivendor capabilities through support of Berkeley Sockets (BSD) Version 4.3, a de facto standard networking interface in UNIX-based environments. Token Ring connectivity is now provided for HP 3000 9X7 and 9X7LX systems and the new HP 3000 Corporate Business Systems. Also, an LU6.2 API feature strengthens MPE/iX-to-IBM communications. The new

release also features TCP/IP transport enhancements.

On the data center front, HP augmented OpenView's capabilities with the addition of an integrated console for managing HP 3000s on a network. A new windows-based HP OpenView Console is available on the mainframe-class Corporate Business Systems.

In addition, HP announced support for several new peripherals with increased capacities.

For Your Information

■ HP and Information Builders Inc. (IBI) announced plans to develop an HP OpenODB interface to IBI's Enterprise Data Access (EDA)/SQL client-server software. The HP OpenODB and EDA/SQL combination allows users to manage enterprise-wide information more easily. HP and IBI also plan to deliver a FOCUS interface to HP's object-oriented database, HP OpenODB.

■ Island Graphics Corp. and MicroAge Computer Centers Inc. announced an agreement providing for the distribution of Island Write, Draw & Paint 3.0 for Sun, HP, IBM RS/6000 and SCO Open Desktop UNIX workstation platforms through MicroAge reseller outlets in the U.S. (415) 491-1000.

■ HP announced that Ingres, an ASK Company, has added the UNIX-system-based HP 9000 family of workstations

and servers as a development platform for the Ingres Intelligent Database. This provides for a joint engineering focused on optimizing Ingres database performance for high-end systems.

■ Wesson, Taylor, Wells and Associates Inc. has been engaged by the telecommunications facility of the United Arab Emirates to perform a strategic information systems planning project. (803) 699-5781.

■ INTEREX, The International Association of HP Computer Users, released its 1992 HP-UX Contributed Software Library (CSL). The library is available for users of HP-UX and now contains 47 programs, 23 of which come directly from HP. (408) 738-4848.

■ ki Research has begun porting work to provide openLAST UNIX clients and servers for HP-UX, Sun, IBM/AIX, SGI and DEC/

Ultrix systems. (410) 290-0355.

■ Oak Grove Systems (OGS) announced that Ideal Computer Services will be OGS' distributor for its U.S. operations. (800) 862-8787.

■ Carolian Systems announced a series of training seminars on System Performance and Capacity Planning based on their SYSPAK product. Dates in 1992 include: August 17-18, Mississauga, ON; September 14-15, Atlanta, GA; October 21-22, Mississauga, ON; November 19-20, Seattle, WA; and December 9-10, Mississauga, ON. (416) 673-0400.

■ Dataram Corp. and Zentronics signed a distribution agreement through which Zentronics will stock and sell Dataram's line of expansion memory, which includes 50+ upgrades for minicomputers, workstations and servers made by HP Apollo, DEC and Sun. (609) 799-0071.

■ Central Data Corp. announced that its scsiTerminal Server has been selected by

Hughes Data Systems as the I/O expansion solution for the Navy's TAC 3 program. The scsiTerminal Servers will be attached to HP Apollo 9000 Series 700 workstations, which serve as the hardware platform for TAC 3. (800) 482-0315.

■ Visual Edge Software Ltd. released the names of initial Independent Software Vendors (ISVs) to co-operate with Visual Edge on the development of UNIX GUI tools for vertical market applications. The ISVs are: Geovision Inc., Interactive Development Environments Inc., Kapiti Ltd, Precision Visuals Inc. and UNIRAS A/S. (415) 948-0753.

■ Acucobol Inc. announced the opening of Acucobol Italia s.r.l. in Piacenza, Italy. It will be the sales and technical support office for Acucobol-based products in Italy, including ACUCOBOL-85, Acu4GL and AcuView. (619) 689-7220.

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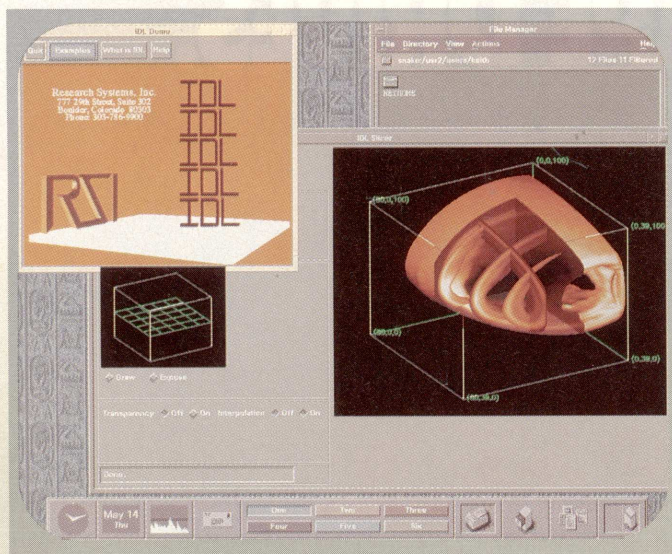
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IDL's Array-Oriented Language Provides Data Presentations You Must See To Believe

Before scientists can interpret data they must first view and analyze it. IDL from Research Systems Inc. provides an analysis and visualization environment for a variety of workstation operating arenas including UNIX and VMS, X and SunView window systems, and Motif and Open Windows graphical interfaces.

More than a pretty picture painter, IDL's array-oriented language helps you reduce programming times compared to traditional languages like C or FORTRAN, while dynamic linking allows the addition of your code.

The data structures supported by the language include scalar, vector, array and aggregate structures; with data types covering byte, short and long integer, single and double-precision floating point, complex and string.

The language lets you define functions and procedures, and create arrays as

large as your virtual memory allows, with a conventional infix notation and syntax.

Some features of the IDL program include the math and statistic functions, multi-dimensional plotting, a graphical user interface (GUI) toolkit and presentation output.

The IDL math functions, which scientists and engineers will appreciate, consist of matrix inversion, SVD and LU decomposition, transcendental functions, complex arithmetic, differentiation and integration and Bessel functions.

The program's 2-D plotting supports line, polar and scatter plots, as well as histograms, bar graphs and error bars. Features like log, semilog, linear scaling, overplot multiple data sets, linestyle, color control and vector flow diagrams make plot generation precise and original.

The surface plotting delivers regular and irregular grids, along with contour and mesh plots. Shaded surface representations of solids and gridded elevations, as well as interpolation of irregular data points are generated through surface plotting. User definable 3-D and 4-D transformations with overlaid images and volume contouring are supported by IDL's surface plotting. A mapping function provides 10 geographic mapping transformations with inverses and warp image data projections.

The image processing

functions of the program deliver visual features such as contrast enhancement, histogram equalization and processing, 2-D and 3-D graphic combination, zoom and pan, image annotation, display images on pseudo-color, true-color and bilevel device; along with image arithmetic with pixels of any data type.

Other image processing functions are convolution, high and low pass filtering, frequency domain and median filtering, Sobel/Roberts edge enhancement and thresholding. New features of IDL include color quantization or true-color image to pseudo-color conversion, and geometric transformations like magnification, minification, rotation and polynomial warping with regular and irregular grids.

The program supports RGB, HLS and HSV color systems. Mouse and cursor support with a complete set of vector-drawn and device specific fonts allow for an interactive output.

IDL allows you to generate your own GUI; as well as supporting consistent interface for both Motif and Open Windows. Basic widget types available with IDL's GUI toolkit include base, sliders, buttons, labels, lists, text and drawables. — Charlie Simpson, Technical Editor

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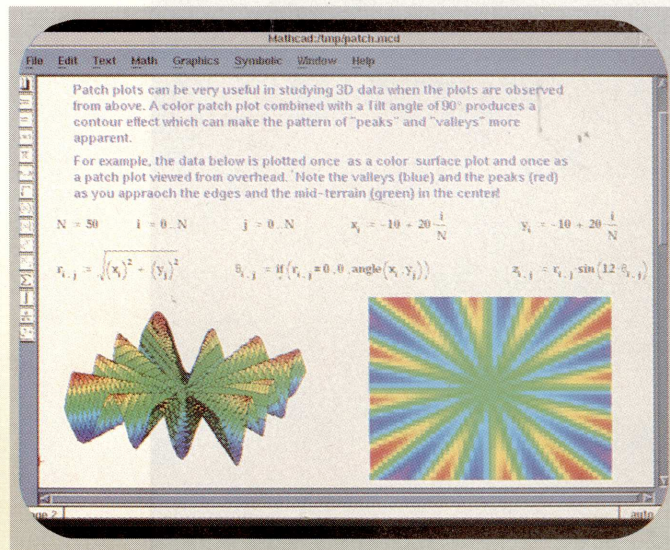
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MathSoft Does For Math What Word Processors Did For Text With Its New Release Of Mathcad

Unquestionably, great strides have been made to provide all of us with easy-to-use, powerful text processing applications. However, those of us who dwell either occasionally or totally in the world of mathematics and technical calculations have found slim pickings when trying to find an easy-to-use, robust math package to handle our needs. Spreadsheets help a little, but they're too general for really serious work. Calculators, pads and pencils are still the tools of choice for some of us.

MathSoft Inc. has gone a long way to change all that and they're moving full steam ahead to provide the most comprehensive, easy-to-use math package available. Mathcad 3.1 is designed specifically to meet the demands of engineers, scientists and students who need to perform sophisticated calculations in their jobs or classes.

More than 200 built-in functions are featured including statistical functions, Fourier transforms and Bessel functions. Other Mathcad capabilities include:

- Array and matrix operations. The easy stuff like matrix transposition, inversions and finding determinants is a cinch. You also can perform matrix addition and multiplication and scalar multiplication. Up to 8 million elements per array can be handled.

- Menu driven symbolic operations. You can quickly and simply perform integration and differentiation, factoring, expression evaluation and series expansions.

- Solve equations and inequalities. Simultaneous linear and nonlinear equalities up to 50 deep and up to 50 unknowns can be solved. Complex variables and roots can be handled.

- Graphing and plotting. Mathcad provides for labeled axes, adjustable line color, legends, various scaling types and grid lines. 3-D surface plots can be generated. HP-GL files from AutoCAD and other programs also can be imported.

While most mathematicians will disagree, man does not live on math alone. Mathcad has much to offer in the way of text capabilities to allow you to write memos, produce reports and generate other documents that contain both text and mathematical symbols. Both equations and text use proportional fonts. Greek letters

and symbols are easy to include in the text.

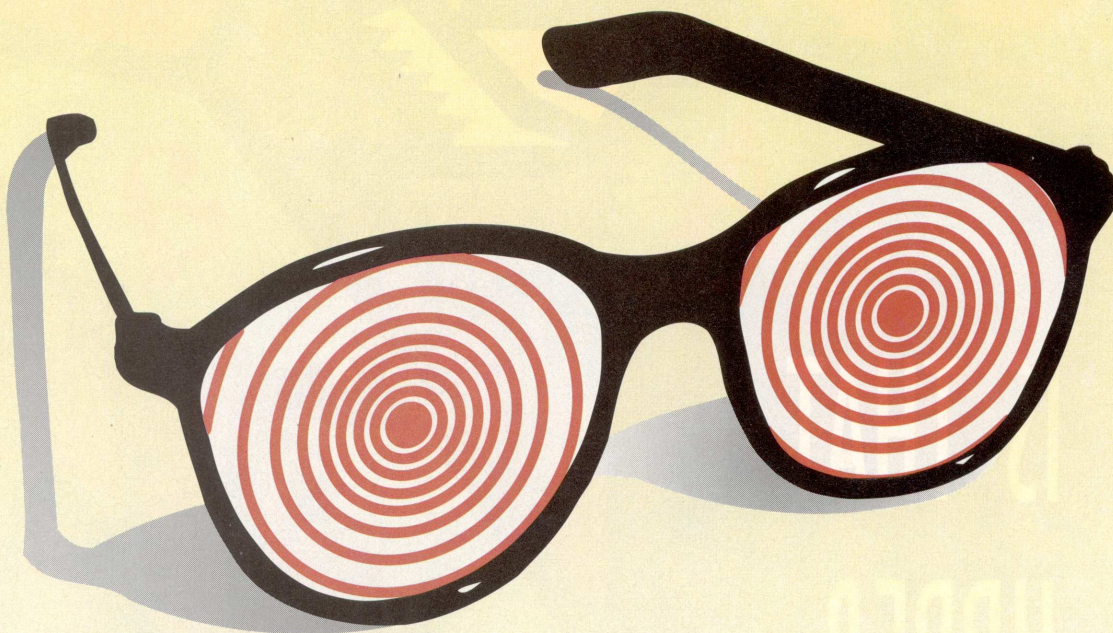
Although not a word processor, Mathcad can accommodate large amounts of text. Clipboard features are included to allow you to cut and paste portions of text. Search and replace operations can be done on equations, graphics and text. It would be very easy for a professor to generate an exam complete with problems, Greek symbols and text, all using Mathcad instead of resorting to drawing all the special symbols by hand.

Mathcad's flexibility is made possible through its Live Document Interface. Functions and graphs are automatically changed whenever you change your data. This allows you to use Mathcad as a powerful scratchpad and what-if tool. Also available are Application Packs, customizable templates designed for use in various fields including engineering, advanced math, statistics and numerical mathematics. The templates provide an easy-to-use interface for solving common problems encountered in each of these fields.

Mathcad costs \$695 (\$349 for educational institutions) and runs on a variety of platforms including HP 9000/700 workstations running HP-UX version 8.0 or higher. — David B. Miller, Senior Technical Editor

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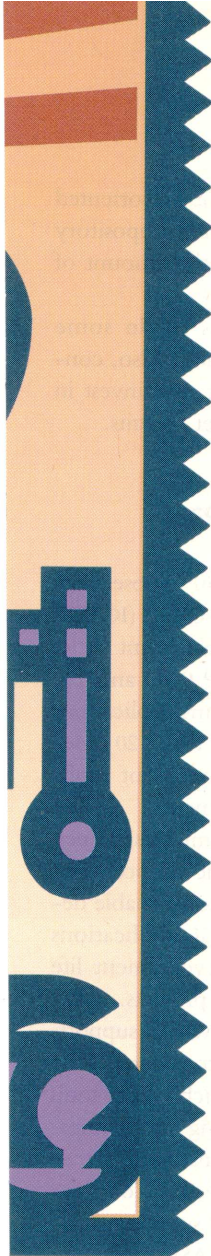
IS THAT UPPER- OR LOWER-CASE?

BY PAULA JACOBS

There's significant confusion today about CASE (computer-aided software engineering) and it's not surprising. Vendors have applied the term CASE to describe anything from a software debugger or simple code generator, to a 4GL or complete application environment. Hundreds of such CASE tools are on the market, but MIS managers are still somewhat hesitant about accepting CASE as an effective panacea. Horror stories continue to circulate about organizations whose high-end CASE implementations created more problems than they solved, forcing a complete business redesign.

Instead of addressing these issues head on, software vendors, together with their PR agencies, have further complicated the issue by coining additional euphemisms for CASE tools and strategies. Users now must understand the complexities of the technology, while deciphering a complicated and ever-changing lexicon of terms and buzzwords.

The paradox is that the right CASE tool can indeed bring significant productivity advantages, and may even be a neces-



Finding the Right CASE Tool Can Bring Significant Productivity Advantages And May Be A Necessity In Today's Business Climate

sity in today's competitive business climate. Software developers are under pressure to develop and deliver highly complex software applications — on time and within budget — more quickly than ever before. Software maintenance costs escalate rapidly as organizations spend more time, resources and dollars to maintain old code.

Lou Mazzucchelli, vice president and chief technical officer at Cadre Software (a CASE software developer), says that the biggest problem is that people don't understand what to think about CASE and consequently turn to CASE only as a last resort. He urges CASE vendors to set realistic expectations so that users do not expect immediate productivity gains.

"CASE is not a magic bullet," says Phiroze Petigura, CASE program manager, Commercial Systems Division at Hewlett-Packard. Petigura advises organizations to adapt a standard methodology, and emphasizes the importance of good communications and documentation. Petigura also feels that customers must understand that proper implementation of CASE involves a cer-

tain cost of entry, including up-front training costs, and explains that the learning curve may vary, depending on the software application, tools and environment.

What's The Real Story?

CASE PRESENTS A DILEMMA for potential users. First, how do you determine whether you really need CASE? Second, what type of solution do you need? Third, how do you evaluate the best CASE solution for your environment and organizational goals? And finally, what are the real productivity gains when measured against the cost of implementing CASE?

CASE tools can help automate the design, implementation and maintenance of software applications throughout the development cycle. CASE tools can help streamline development and reduce the maintenance backlog by using reverse engineering to change existing code into new code.

Today's broad selection of CASE tools address numerous application requirements, and run on workstation, midrange, mainframe and PC/LAN platforms. They are generally categorized as upper- or lower-CASE, which relates to the portion of the application life cycle supported. Upper-CASE tools fit the planning, analysis and design phases run, on PCs or workstations, feature a graphical component and incorporate diagramming or charting.

Lower-CASE tools are suitable for implementation, testing and maintenance phases, and may include 3GLs, 4GLs, database management systems, forms management systems, report writers and code generators (implementation phase); code analyzers, debuggers and testing tools (testing phase); and source management, source analysis and reverse engineering tools (maintenance phase). Lower-CASE tools run on server or multiuser systems, and do not include graphics capabilities.

CASE also has given birth to a variety of formal methodologies used to define each step of the development cycle. Until recently, the use of these formal methodologies was quite expensive and thus limited to large development shops. However, today's new integrated CASE tools can be configured to suit even the needs of smaller application development shops. In fact, even in smaller shops, the adoption of a methodology is recommended to provide structure and increase CASE's effectiveness to improve productivity.

As for the value of CASE and where it fits, misconceptions abound. They range from how CASE tools affect system performance to their impact on business practices.

One major obstacle is the lack of clearly defined CASE standards, such as repositories and intercommunications among different tools. With the move to open systems, users demand portability and support for different life cycle implementations in order to maximize their existing system investments. The

The selection of the tool suitable to the application, environment and life cycle requirements is key.

only open repository CASE standard today (supported by HP) is the PCTE standard, which defines a public tools interface that is open, and supports total integration and portability.

Tony Picardi, director of software research at International Data Corp. (IDC), says that one problem is that previously, CASE technology penetrated early adopters, but today CASE must be marketed to a much broader spectrum of users who have more specific needs.

Good Tools: Some Strategies

THERE ARE SEVERAL ingredients to a successful CASE strategy. Obviously, selection of the tool suitable to the application, environment and life cycle requirements is key. Because most environments have significant existing code, it's important that a CASE tool address both the requirements of new systems and existing system modifications. One common need among HP users is to support existing file structures, such as HP TurboImage or convert flat-file base definitions to relational databases, such as Informix C-ISAM.

A good CASE tool should help you improve the application development cycle, and should not require you to redesign the business. You should look for a CASE tool that is flexible enough to adapt easily to your organization so that you don't have to re-engineer your business practices to accommodate the CASE architecture.

When you decide on CASE, think carefully about what phase of the life cycle you need to support. Don't be misled by zealous vendor pitches. Do you need to support the entire CASE life cycle? Or just certain phases? Do you require an upper- or lower-CASE tool? There are also products on the market that are in-between.

Also, consider carefully the methodology, programming technique and design you plan to employ. For example, in a multiuser development environment, the application development environment must be able to use a standard repository that can communicate with upper-CASE tools and control the entire application development life cycle. It's also important to be able to design physical models that you can modify easily to reflect final system structure and produce complete database definitions and program code.

CASE users now are finding that the use of object-oriented programming techniques is one way to maintain a repository in which all objects can be reused, decreasing the amount of new code required to complete an application.

As for implementation, the best route is to do some prototyping while you are still evaluating products. Also, consider training an important up-front investment, and invest in as much training as your staff requires and budget permits.

What's Out There For HP?

THE GOOD NEWS IS THAT HP users can choose from a variety of standalone and Integrated-CASE (ICASE) tools that address every phase of the development cycle. CASE solutions are available for HP 3000, HP 9000 and HP Apollo Domain/OS. More than 200 open systems applications are available for the HP 3000 system from more than 120 independent software vendors. These tools meet a range of application needs, including very specialized requirements.

HP has articulated a very clear strategy for multiuser open CASE for the HP 3000, and has developed strategic alliances with several ICASE software suppliers. These ICASE tools enable developers to automatically generate 3GL or 4GL applications from high-level designs, support the entire development life cycle, and are ideal for large-scale development projects.

On the HP-UX side, HP offers SoftBench, which supports heterogeneous, distributed computing and is considered a de facto industry standard CASE framework. SoftBench's set of tools is designed for the program construction, testing and maintenance phases of software development. SoftBench features an open integration environment, with a UNIX-based Tools Integration Platform that is available to CASE tool suppliers.

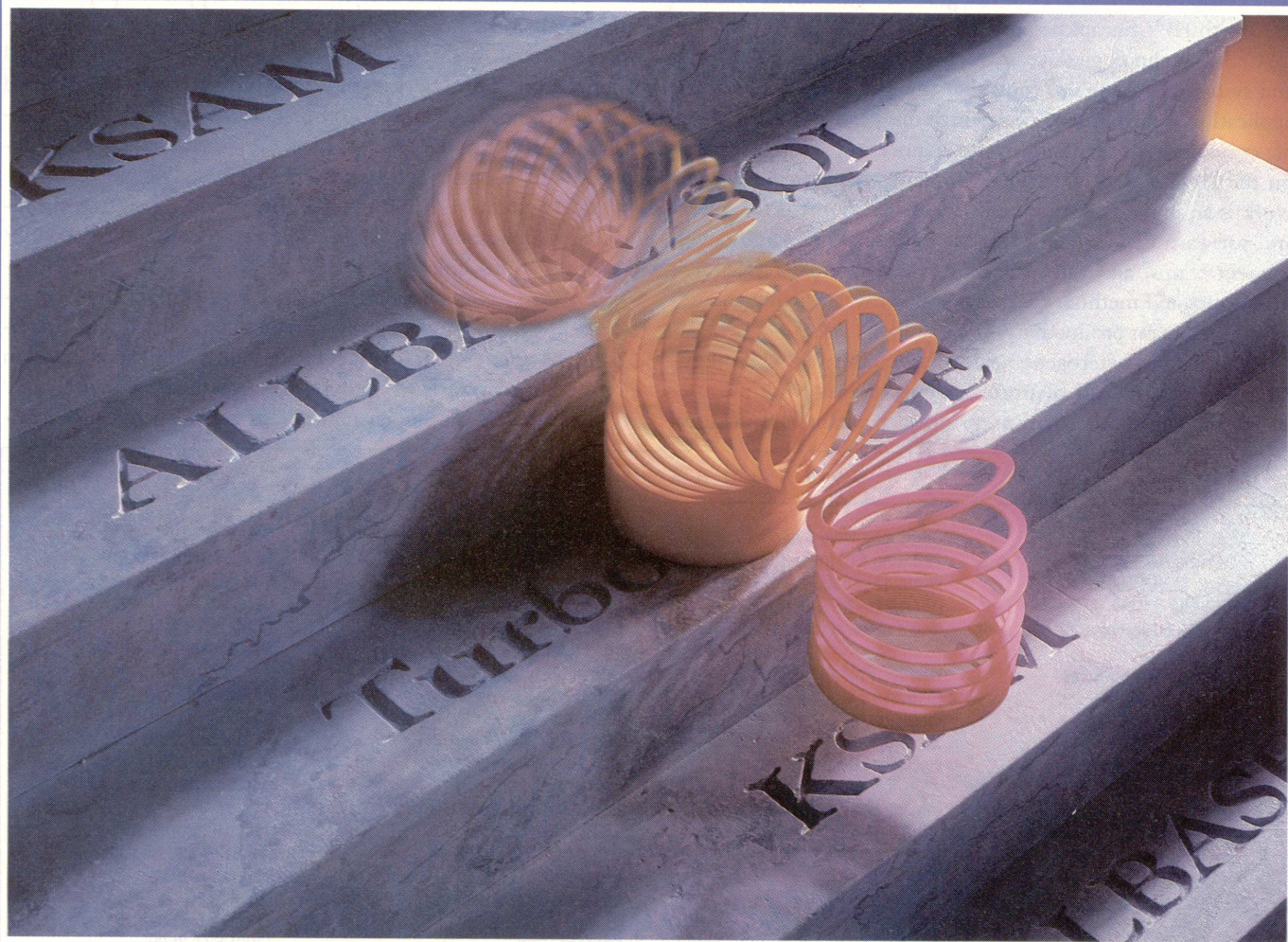
Third-party vendors can integrate their CASE tools into SoftBench, adding value and functionality. HP also has formed a CASE commune of approximately 25 third-party vendor companies, such as Cadre and IDE, that support and are encapsulating their applications into the SoftBench framework.

SoftBench includes an integrated set of program development for fast editing, compiling and debugging for C. HP SoftBench tools include a Program Editor, Program Builder, Program Debugger, Static Analyzer, Development Manager and Mail. The Tool Integration Platform allows for tools integration, and provides tool communication, distributed computing services, OSF/Motif appearance and behavior across all tools, and an integrated online help facility.

Based on the X Window System Version 11, SoftBench supports HP-UX on HP 9000 (Series 300 and 800) and the HP Apollo Domains/OS Series. The companion product to SoftBench is Encapsulator which enables users to extend and customize the HP SoftBench framework environment by adding tools of choice or by automating development processes of choice.

HP's C++ SoftBench is a full-scale environment for object-

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oriented C++ software development, and allows fast edit, compile and debug. This toolset is designed for the program construction, testing and maintenance phases of software development and features a C++ Developer, Program Builder, Program Editor, Program Debugger, Static Analyzer and Development Manager; includes a library of reusable data abstraction components and a Tool Integration Platform; and can be used with HP's Encapsulator.

Cadre Technologies' Teamwork is a broad range of software and system development tools that support every phase of the application development cycle, including upper-CASE, cross-life cycle, maintenance and reverse engineering. Teamwork runs on the HP-UX and HP Apollo Domain/OS platforms. Teamwork is an integrated, multiuser CASE environment for system and software development that supports small to large development teams, and can help automate standard development techniques and methods for maximum software quality and development team productivity.

Transparent, heterogeneous interoperability allows configuration flexibility and platform independence. Multiple user access to Teamwork's common project database from local

client workstations is provided using standard networking protocols for file sharing and communications. Teamwork can operate on a heterogeneous network, so that development environments are not restricted to any particular platform. The Cadre Teamwork Environment also supports X Windows terminals and X Windows emulators for low-cost user access.

Teamwork features analysis tools that support all popular system analysis methodologies, including Structured Analysis, Object-oriented Analysis, Real-Time Analysis, Data Modeling and Simulation. Teamwork design tools support industry-standard design techniques for software and database development, including Structured Design, Object-Oriented Design, ADA Design methodologies and Relational Database Design.

CGI Systems' PACLAN/X is an Integrated-CASE system supporting application development on a LAN of MS-DOS and OS/2 workstations linked through a UNIX client-server architecture. PACLAN/X supports all phases of the application development cycle, including analysis, design, production and maintenance. Developers can access PACLAN/X's facilities from workstations in order to design and develop applications.

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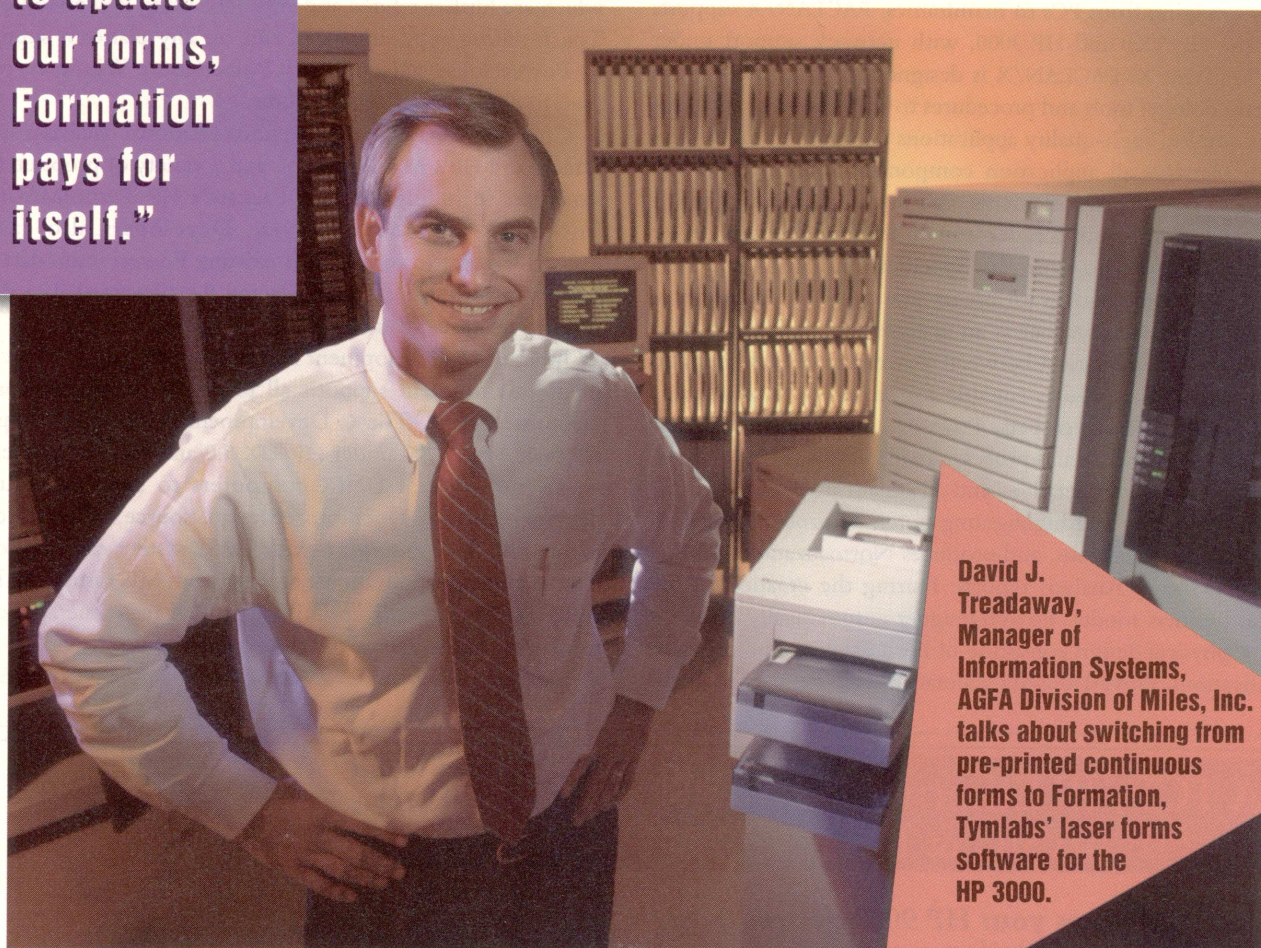
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**David J. Treadaway,
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talks about switching from
pre-printed continuous
forms to Formation,
Tymlabs' laser forms
software for the
HP 3000.**

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ware and operating system, and can produce applications for systems ranging from PCs to mainframes. PACLAN/X supports both the HP 9000 and HP 3000, with network support under LAN Manager X. PACLAN/X is designed to automate the use of methodology, tools and procedures to help engineer and generate complex, high-quality applications quickly and easily. The system manages all application components from models and screens to reports, data elements, and documentations through its Specification Repository located on the UNIX server; server resources are used to store the Specifications Repository and extract all reusable entities for use in new development projects.

Cognos' PowerDesigner is an analysis and design tool that provides tight integration between PowerHouse Designer and PowerHouse 4GL, and is suitable for small- to medium-size PowerHouse 4GL developers. PowerDesigner assists designers by implementing data and process models across three levels — logical, physical and detail — and automatically validates these models, detecting and highlighting potential problems, inconsistencies, and omissions, and produces Normalization and Entity Life History Analysis reports. During the creation of the logical business model, PowerDesigner automatically creates a default physical design consisting of both database and program specifications. PowerDesigner generates ANSI-standard SQL da-

tabase definitions and high-level program design specifications which are further refined and enhanced using PowerHouse 4GL. The resulting application can run on any platform supported by PowerHouse 4GL and, with PowerHouse Windows, can be used in client-server architectures.

Cognos' PowerDesigner supports relational databases such as Oracle and HP's ALLBASE/SQL and a variety of proprietary file structures including Hewlett-Packard's HP TurboIMAGE and Informix's C-ISAM for UNIX. Developers also can use PowerDesigner to re-engineer existing PowerHouse data definitions in order to convert selected flat file-based data definitions to relational databases.

Interactive Development Environments' (IDE) C Development Environment supports all phases of the application development cycle. The C Development environment supports HP 9000 Series 780 under HP/UX 8.0 and runs in a heterogeneous network of UNIX computers to support multiuser development and synchronize design, source code and documentation. This enterprise-wide CASE system can be used for a wide range of applications, ranging from MIS systems to large-scale DOD systems, from building a new real-time application to maintaining a transaction processing system.

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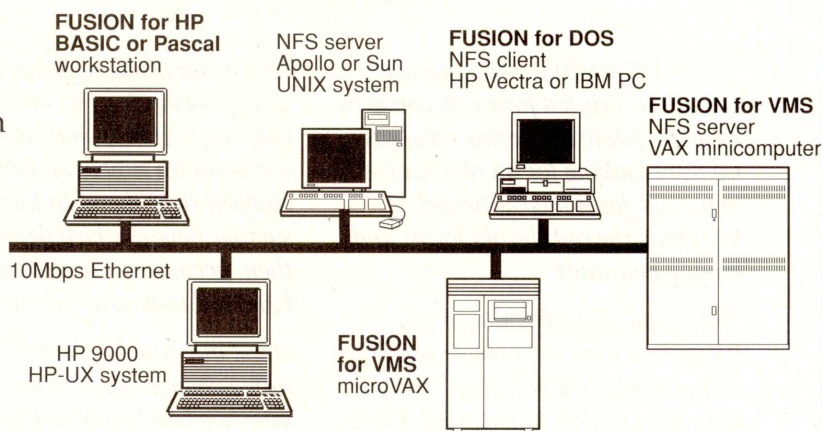
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port Writer represent specialized CASE tools designed for a specific application. These CASE tools, which work with Lawson's Financial, Human Resource and Distribution systems provide end users with tools to customize the Lawson accounting system. These tools run on the HP 9000 Series 800 systems.

Oracle's CASE tools also are highly specialized, and support only the ORACLE database, generating SQL*FORMS code from applications designed using CASE*Designer and CASE*Method. Oracle's CASE toolsets runs on several PC and UNIX workstation platforms and can target HP 3000 systems. The Oracle CASE toolset includes CASE*Method, CASE*Dictionary, CASE*Designer and CASE*Generator. CASE*Method supports the complete systems life cycle, from strategy through production.

Speedware Corp.'s SPEEDWARE application development technology is a tightly integrated family of tools that covers all stages of the application development cycle, including ongoing maintenance and documentation. Based on industry standards, SPEEDWARE provides end users and developers with common interfaces to all supported platforms. The product family includes several components — CASE tools, a 4GL, end-user reporting tools, automatic system and user documentation products, and networking capabilities to support client-server and distributed architectures. SPEEDWARE Version 6.02 runs on the HP 3000 and the HP 9000 platforms, and is compatible with HP ALLBASE/SQL.

SPEEDWARE's CASE component is SPEEDWARE/Designer — an object-oriented, fully integrated CASE tool that includes prototyping and application generation functions. It covers design, development, database and code generation, testing, maintenance, and user and system documentation stages. As a real-time, multiuser, multiapplication CASE environment, SPEEDWARE/Designer enables many developers to work concurrently on the same design and generate applications for different file and database systems.

Who's Implementing CASE?

CASE HAS ACHIEVED GREATEST success in the engineering environment. Early CASE adopters included the aerospace and telecommunications industries, which often adopted CASE tools after spending significant time building their own tools. ICASE has proved popular in mission-critical applications, including banking, insurance and distribution. Today, CASE users can be found in all HP market segments, including commercial applications.

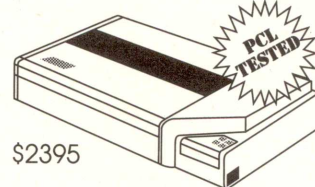
A good case in point is the American Association of Individual Investors. Approximately five years ago, the AAII implemented SPEEDWARE's application development environment which currently runs on HP's 927/LX system. According to Harry Madorin, director of operations, AAII implemented SPEEDWARE to develop maintenance applications, with control over both the development and maintenance cycle.

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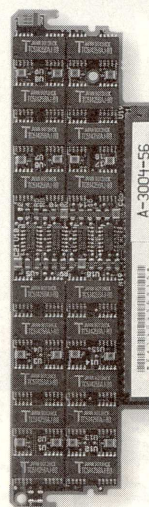
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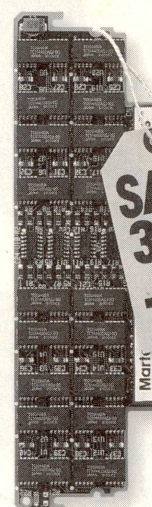
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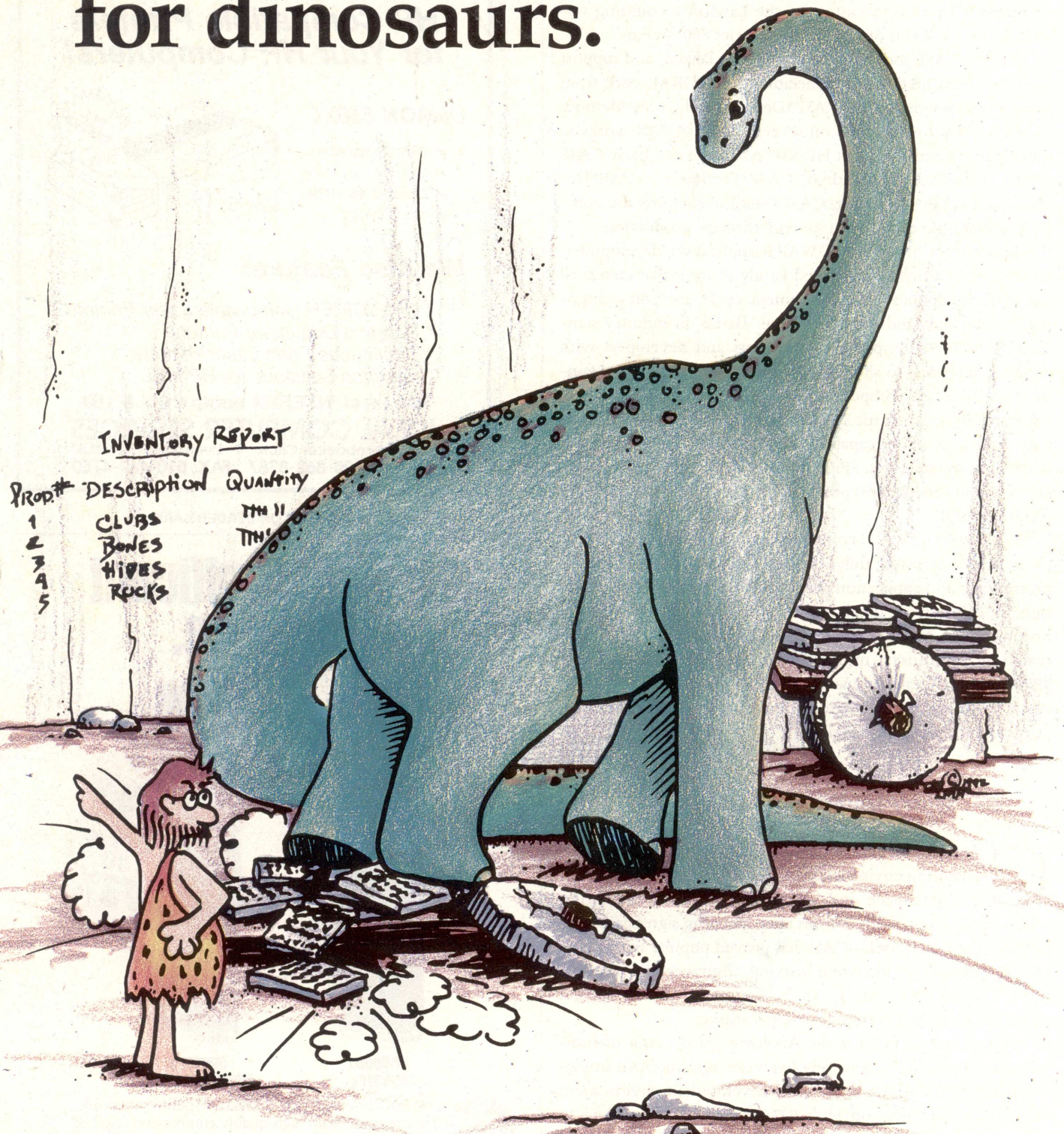
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The Chicago-based Association must maintain accurate records of its 130,000 members, and send chapter and renewal notices. Madorin says that the use of SPEEDWARE has helped reduce the amount of coding necessary, while the paint screen capability helps eliminate miscoding errors.

Myth Vs. Reality

CASE STILL HAS A WAY to go before achieving widespread acceptance. Lack of standards, an overly broad product selection, and confusing terminology have created difficult hurdles. The implementation of CASE must be viewed as an evolutionary growth process that can provide timely delivery of quality applications.

However, vendors should refrain from positioning CASE as an instant panacea to all software development problems. Users need to redefine their expectations, but also realize that CASE is an investment of time, money, and, in some cases, equipment such as dedicated servers. If organizations commit to CASE, they also must be prepared to invest in significant training so they can achieve a successful CASE implementation. The right CASE tools can provide measurable benefits to the client-

server computing environment, which requires flexible solutions for changing business needs. — *Paula Jacobs is a marketing consultant and writer based in Framingham, Massachusetts who specializes in the implementation of new technologies.*

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Mike Carl, in the July 1989 issue of *HP Professional*, writes: 1989 will be remembered as the year the workstation market began to heat up, as Hewlett-Packard bought Apollo Computers, and competitors lowered prices, increased performance, functionality and ease-of-use. ■

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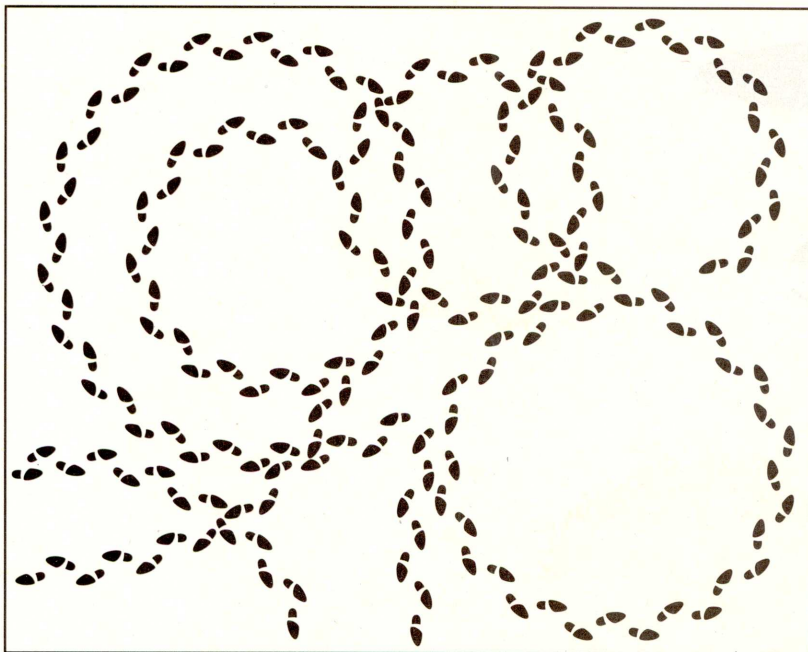
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Where Are Your HP-UX Resources Going?


By Marty Poniatowski

A Way To Gain Insight Into The Way System Resources Are Used

With a finite amount of networking, I/O, memory and CPU resources available on your HP-UX system you should have a good idea how these resources are being used. You also should be able to do this quickly and easily. One of the advantages of having an HP-UX system in your data center rather than a traditional mainframe system is that you have fewer layers to fight through when working with your system. This is a big advantage when determining how your system resources are being used. There are both built-in HP-UX capabilities to support you, as well as add-on products designed specifically for evaluating system performance.

I'll take a three step approach to determining how your system resources are being used:

- Understanding some standard HP-UX commands that give you information about system resources.



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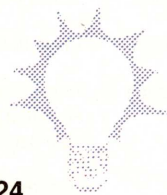
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Standard HP-UX Commands

TO BEGIN WITH THERE are several standard HP-UX commands, supplied with your system, that give you a snapshot of the level of system resources being consumed. *Table 1* provides a list and short description of these commands.

All of these commands are easy to use. For example, the **iostat** command gives you an indication of the level of effort the CPU is putting into I/O, and the amount of I/O taking place among your disks and terminals. *Table 2* shows the **iostat -t** command and associated output from an HP-UX system. The “#” shown is the HP-UX prompt.

Here are descriptions of the information you will receive with **iostat** for terminals, the CPU and mounted file systems:

- For every terminal you have connected (tty) you will see a **tin** and **tout** that represent the number of characters read from your terminal and the number of characters written to you terminal respectively. The **-t** option produces this terminal report.
- For your CPU, you'll have the percentage of time spent in user mode (**us**), the percentage of time spent running user processors at a low priority called **nice** (**ni**), the percentage of time spent in system mode (**sy**), and the percentage of time the CPU is idle (**id**).
- For every locally mounted file system you will receive information on the KB transferred per second (bps), number of seeks per second (sps) and milliseconds per average seek (msps). For disks that are NFS mounted or disks on client nodes of your

server, you will not receive a report. Only locally mounted file systems appear with **iostat**.

When viewing the output of **iostat** there are some parameters to take note of.

First, take a look at the amount of time your system is spending in the four categories shown. I've worked on systems that have poor performance that the administrator assumed to be a result of a slow CPU when in fact the **id** number is very high indicating the CPU is in fact idle most of the time. If the CPU is mostly idle the chances are the bottleneck isn't the CPU but I/O, memory or networking. If the CPU is indeed busy most of the time (**id** is very low) then see if any processes are running **nice** (check the **ni** number). It may be that there are some background processes that consume a lot of CPU time that can in the future be run **nice**.

Second, compare the msps for all of the disks you have mounted. If you have three identical disks mounted, yet the msps for one of the disks is substantially higher than another then you may be overworking one of your disks while the others remain mostly idle. If this is the case, then you may want to more evenly distribute the workload among your disks so that you get as close to the same number of accesses per disk as possible. Note that a slower disk always will have a higher msps than a faster disk so put your most often accessed information on your faster disks. The msps for a disk may be 10 or 20 ms and 200 ms for a mounted CD ROM. In the example above, the CD ROM is the last disk shown with a high msps.

HP-UX Accounting

ALL OF THE BUILT-IN HP-UX commands give you information about what is taking place on your system as you issue the command. A way to gather information about your system and your users over time is to use built-in HP-UX accounting.

HP-UX accounting supplies a lot of valuable information such as the amount of CPU time and memory consumed by each user, the time each user was logged into the system, and other such resource related information. Using the built-in accounting capability of HP-UX, you can produce one report daily and one report monthly that contains a summary of the ways in which system resources are being used.

Unlike the first and the third approaches that give informa-

TABLE I

iotstat	A summary of CPU, disk, and terminal activity.
vmstat	Virtual memory and CPU summary.
netstat	Network statistics information.
landiag	Provides an interface to your LAN interface including the option to provide a detailed LAN summary.
ps	Provides information about every running process.
sar	Provides a CPU report similar to “iotstat” and “vmstat”.
timex	Provides detailed information about a specific process.

TABLE 2

```
# iostat -t
tty          cpu          /dev/dsk/0s0      /dev/dsk/5s0      /dev/dsk/cdrom
tin tout    us  ni  sy  id    bps  sps  mspms  bps  sps  mspms  bps  sps  mspms
0 99       20  2  20 58     1  0.1  19.3    1  0.9  14.9    0  0.0  215.8
```

Standard HP-UX commands.

The iostat -t command and its associated output.



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HP B1791A A.00.00 GlancePlus/UX 13:56:29 hpptc3 9000/360 Current Avg High									
CPU Util	S	30%					18%	97%	
Disk Util	F	18%					3%	21%	
Memory Util	S	65%					65%	70%	
Swap Util	F	99%					96%	99%	
PROCESS SUMMARY									
Process Name	PID	PPID	Pri	User Name	CPU Util	Disk IO Rate	Resident Set Size	Block On	
netlsm	4	0	100	root	1.6/ 1.2%	0.0/ 0.0	0	SYS	
midasmon	19078	19074	50	terri	2.1/ 1.1%	0.0/ 0.0	144	DIR	
rwhod	113	1	154	root	1.6/ 0.8%	1.6/ 0.9	92	IPC	
swapper	0	0	128	root	0.0/ 0.0%	3.1/ 0.6	0	SYS	
xload	16879	16878	154	dougg	0.1/ 0.0%	0.0/ 0.0	248	DIR	
syncer	73	1	168	root	0.3/ 0.1%	1.7/ 0.7	16	DIR	
gcsp	27015	3	153	root	2.0/ 0.8%	1.5/ 1.3	0	DIR	
gcsp	25615	3	153	root	1.3/ 0.7%	3.7/ 0.8	0	DIR	
gcsp	24588	3	153	root	2.2/ 0.8%	3.8/ 1.0	0	DIR	
glance	24238	24222	156	cliff	3.7/ 3.9%	0.0/ 0.0	768	TERM	
gcsp	27100	3	153	root	1.9/ 1.0%	3.5/ 1.5	0	DIR	
Page 1 of 2									
Select	CPU	Memory	Disk	GlancePlus	Next	Refresh	Help	Exit	
Process					Keys	Screen			

Glance Plus/UX.

tion about your system in real time, HP-UX accounting provides you summary reports that you can review at your leisure.

After enabling HP-UX accounting, you can get just about any system related information you like. The following daily report shows, among other things, the amount of time each terminal was in use. As shown below, ttyu0 was in use 97 percent of the time. The console was in use only 27 percent of the time (see Table 3).

Table 4 describes some of the entries under the "line use" section. You also can gather information about users as Table 5 shows.

Table 6 describes the user related information that will automatically appear in both daily and monthly accounting report files when accounting is enabled.

There are some categories of information that should be of interest to every HP-UX system administrator. All these categories of information are produced in the daily and monthly accounting reports.

TABLE 3

Mar 17 04:00 1992 DAILY REPORT FOR HP-UX Page 1
from Mon Mar 16 11:44:46 1992
to Tue Mar 17 04:00:04 1992

2 system boot
2 run-level 3
2 acctg on
1 runacct
1 acctocon1

TOTAL DURATION IS 975 MINUTES

LINE	MINUTES	PERCENT	# SESS	# ON	# OFF
pty/ttyu0	943	97	8	8	16
console	259	27	3	3	6
TOTALS	1202	—	11	11	19

Daily report showing amount of time terminal was used.

You may be interested in the amount of resources consumed by a specific command such as the X Window System or your database application. Table 7 provides such information.

This command-related information is contained in the same report as the user information. Table 8 is a description of command-related information.

HP GlancePlus/UX

THE FIRST TWO techniques needed to get a better understanding of what your system is doing require you to deal with reports that contain some useful data as well as some data you don't care about. In the first case (issuing HP-UX commands), you get the advantage of obtaining data about what is taking place at a precise moment on your system.

Unfortunately, you can't always issue additional commands to probe deeper into an area, such as a process, that you want to know more about. In the case of HP-UX accounting, you get a lot of useful data gathered over time, however, there are a lot of reports generated so you spend a lot of time managing reports, and examining them to extract the information that may be helpful to you.

A tool that can help get useful data in real time, allow you to investigate a specific process and not inundate you with reports is HP GlancePlus/UX (Glance). The photo above is a Glance screen shot.

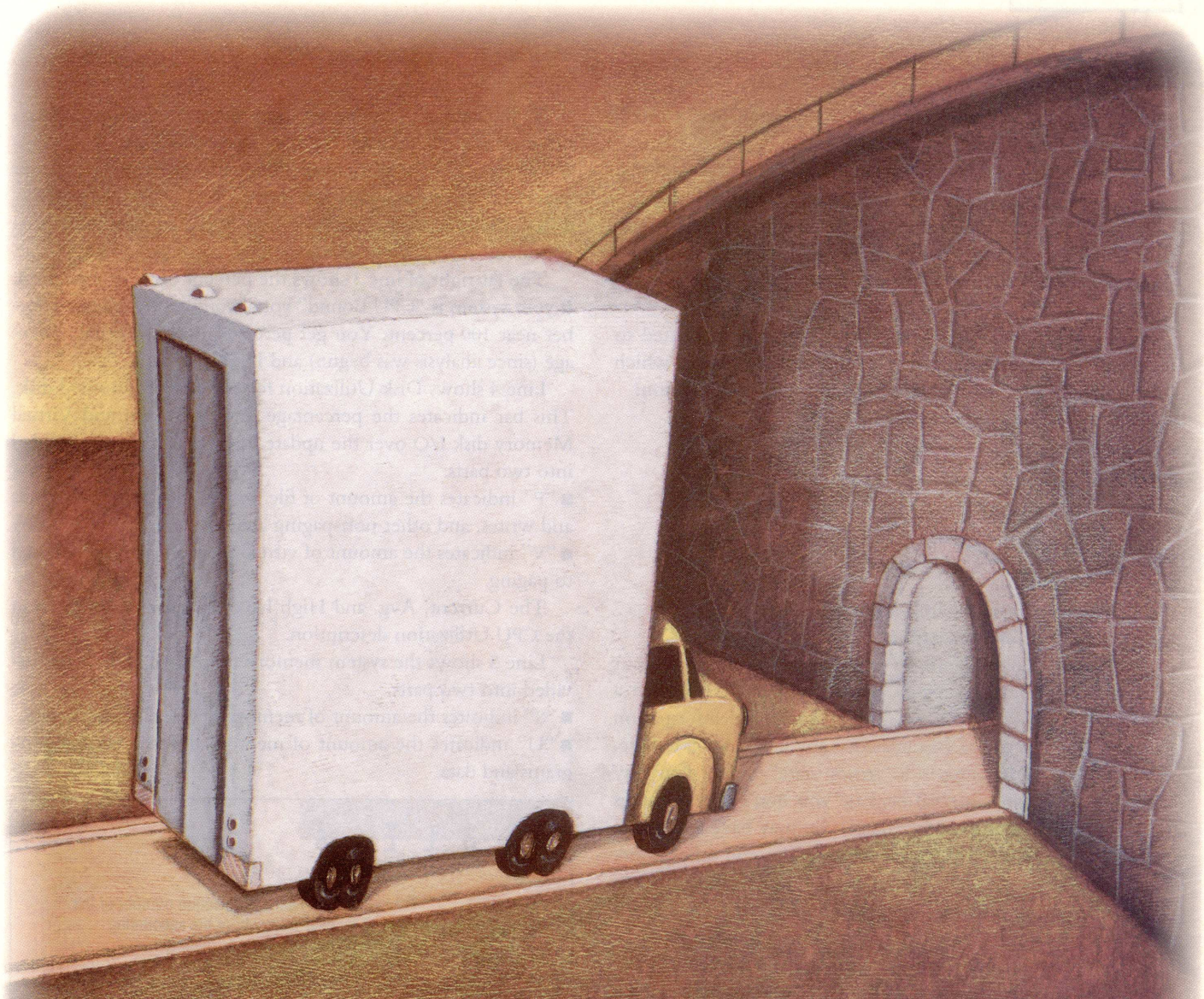
Two features of the Glance screen are worth noticing:

- The four histograms give you a graphical representation of

TABLE 4

LINE	The terminal line or access port used in the report.
MINUTES	The total number of minutes the line was used since the last daily report was produced.
PERCENT	The percentage of "TOTAL DURATION" that the line was in use.
PERCENT =	(MINUTES / TOTAL DURATION) * 100
# SESS	The number of times a login took place on the port.
# ON	Identical to # SESS.
# OFF	The number of times a user logged off as well as the number of interrupts on this line.

Possible entries under the "line use" section.



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CIRCLE 170 ON READER CARD

your CPU, Disk, Memory and Swap Utilization that is much easier to assimilate than a column of numbers.

■ The "Process Summary" has columns similar to "ps -ef" that many system administrators are familiar and comfortable with.

Because most administrators have a greater appreciation of what is taking place on the system when it's in the form of a graph rather than numbers, the Glance interface is pleasant to work with.

Glance provides insight into all the major areas related to system performance monitoring. Here are the areas in which Glance can provide you valuable system related information:

- Global summary of your system.
- CPU detail.
- Memory detail.
- Swap detail.
- Disk detail.
- LAN detail.
- NFS detail.
- Diskless server resource utilization.
- Individual process information.

Because the Global Summary shown tells you where your system resources are going at the highest level, I'll give a description of the lines. Keep in mind that the information shown on this screen can be updated at any interval you choose. If your system is running in a "steady state" mode, you may want to have a long interval because you don't expect things to change much. On the other hand, you may have a dynamic environment and want to see your histograms and other information updated every few seconds. In either case, you can change the update interval to suit your needs.

Line 1 provides the product and version number of Glance.

Line 3 provides information about the overall state of the CPU. This tends to be the single most important piece of information administrators want to know about their system — "Is my CPU overworked?"

The CPU Utilization bar is divided into three parts:

■ "S" indicates the amount of time spent on "system" activities such as context switching and system calls.

■ "N" indicates the amount of time spent running "nice" user processes (those run at a low priority).

■ "U" indicates the amount of time spent running user processes.

The far right of line 3 shows the percent of CPU utilization. If your system is "CPU Bound" you'll consistently see this number near 100 percent. You get percentages for Current, Average (since analysis was begun) and High.

Line 4 shows Disk Utilization for the busiest mounted disk. This bar indicates the percentage of File System and Virtual Memory disk I/O over the update interval. This bar is divided into two parts:

■ "F" indicates the amount of file system activity of user reads and writes, and other non-paging activities.

■ "V" indicates the amount of virtual memory activity devoted to paging.

The Current, Avg. and High have the same meaning as in the CPU Utilization description.

Line 5 shows the system memory utilization. This bar is divided into two parts.

■ "S" indicates the amount of memory devoted to system use.

■ "U" indicates the amount of memory devoted to user programs and data.

TABLE 5

Mar 17 04:00 1992 DAILY USAGE REPORT FOR HP-UX Page 1

	LOGIN	CPU	(MINS)	KCORE-MINS		CONNECT(MIN)		DISK	# OF	# OF
UID	NAME	PRIME	NPRIME	PRIME	NPRIME	PRIME	NPRIME	BLOCKS	PROCS	SESS
0	TOTAL	48	484	136757	662720	542	240	0	729	11
0	root	1	5	153	374	299	240	0	311	10
1	daemon	1	17	1316	35091	0	0	0	112	0
4	adm	0	0	0	0	0	0	0	166	0
9	lp	0	0	0	0	0	0	0	7	0
301	adrian	20	46	462	135980	630	244	200	5	133

TABLE 6

UID	The user identification number of the user from whom the accounting information was gathered.
LOGIN NAME	The login name of the user from whom the accounting information was gathered.
CPU (MINS)	The number of prime and non-prime CPU minutes used by each user (prime vs. non-prime is described in the /usr/lib/acct/holidays file).
KCORE-MINS	The amount of memory used by a user times the amount of time the memory was in use.
CONNECT (MINS)	The number of minutes each user was logged into the system.
DISK BLOCKS	The total number of disk blocks allocated for each user.
# OF PROCS	The total number of processes spawned by each user.
# OF SESS	The number of times each user logged in.

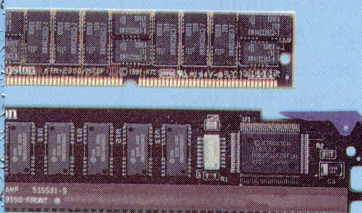
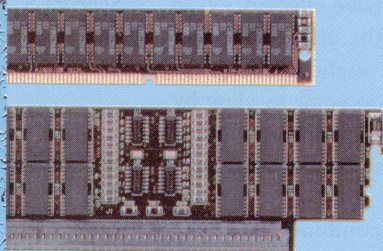
Gathering user information.

User related information in accounting report files.

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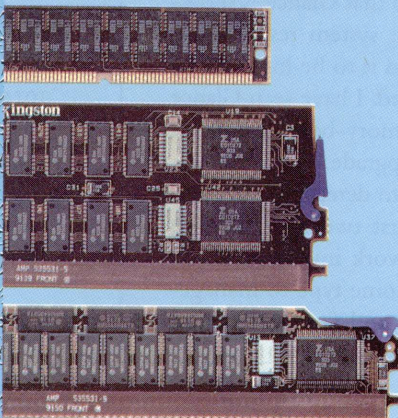
9000 300 & 400

- 345
- 375
- 380
- 400dl
- 400s
- 400t
- 425e
- 425s
- 425t
- 433s



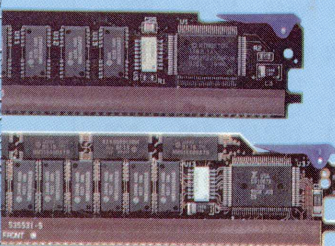
9000 700 & 8x7

- 700/RX
- 705
- 710
- 720
- 730
- 750
- 807
- 817
- 827
- 837
- 847
- 857
- 867
- 877



3000 9x7 & 9x7LX

- 937
- 947
- 957
- 967
- 977
- 917LX
- 927LX
- 937LX
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- 957LX
- 967LX



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The Current, Avg. and High have the same meaning as in the CPU Utilization description.

Line 6 shows swap space information which is divided into two parts:

- "F" indicates fixed local swap.
- "D" indicates dynamic local swap.

All three of these areas; CPU, Memory and Disk, may be further analyzed by using the F2, F3 and F4 function keys respectively. When you select one of these keys, you move from the "Global Summary" screen to a screen that provides more in-depth functions in the specific area you have selected.

The bottom part of the screen shows the active processes running on your system. One of the most useful functions of Glance is that you can select the process you want to view by the level of system resources it is consuming. You can, for instance, ask to view only the processes that are using greater than 10 percent CPU Utilization.

I think you now can see that Glance combines all of the best features of the HP-UX commands earlier covered and goes much further.

What should you look for when using Glance? Because Glance provides a graphical representation of the way in which your system resources are being used the answer is simple — look to see which of the four bars have a high "Avg" utilization. You can then probe further into the process(es) that is causing this high utilization. If, for instance, you find your memory is consistently 99 percent utilized, then you can select the F3 function key and have Glance walk you through investigating which of your applications and users are memory hogs.

Similarly, you may be surprised to find that Glance is showing your CPU or another aspect of your system resources to have a low utilization when you expected it to be high. Many slow systems are assumed to be CPU-bound. I have seen Glance used to determine a system is in fact memory-bound resulting in a memory upgrade instead of a CPU upgrade.

The difference between using Glance to determine the level of CPU resources being used and the first two approaches is that Glance takes out a lot of the guesswork involved. If you are going to justify a system upgrade of some type to management, it's easier to do this with the hard and fast data. Glance

provides the detective work you may need to do with HP-UX commands and HP-UX accounting.

The best approach to take to understanding where your system resources are going is to become familiar with all three techniques. You can then determine which information is most useful to you. The most important aspect of this process is to regularly issue commands and review accounting data so that small system utilization problems don't turn into catastrophes and adversely affect all your users. — *Marty Poniatowski is a technical consultant in computer-aided engineering for Hewlett-Packard in Stamford, CT.*

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TABLE 8

COMMAND NAME	The command name for which execution statistics have been generated. Shell procedures are grouped under the name "sh".
NUMBER CMDS	The number of times that the command was invoked.
TOTAL KCOREMIN	The kcore minutes accumulated for the command. kcore minutes are the amount of memory used by a command times the amount of time the memory was in use.
TOTAL CPU-MIN	The CPU time used by the command.
TOTAL REAL-MIN	The accumulated real time in seconds used by the command.
MEAN SIZE-K	The average amount of memory in KB consumed by the command.
MEAN CPU-MIN	The average CPU time consumed by the command is the total CPU time consumed by the command divided by the number of times the command was executed.
MEAN CPU-MIN =	TOTAL CPU-MIN / NUMBER COMMANDS
HOG FACTOR	The hog factor of a command is the total CPU time consumed by the command divided by the minutes consumed by the command.
HOG FACTOR =	TOTAL CPU-MIN / TOTAL REAL MIN

TABLE 7

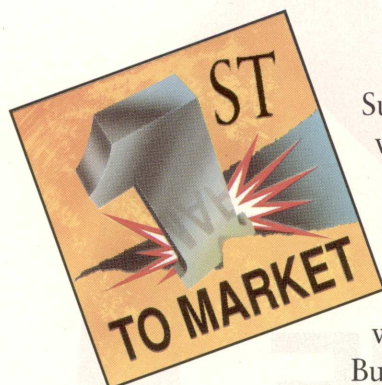
Mar 17 04:00 1992 DAILY COMMAND SUMMARY Page 1

COMMAND	NUMBER	TOTAL	TOTAL	TOTAL	MEAN	MEAN	HOG
NAME	CMDS	KCOREMIN	CPUMIN	REALMIN	SIZE-K	CPUMIN	FACTOR
TOTAL	729	799050	532.12	2893448	1501.64	0.73	0.00
ugraf	5	761091	505.52	22123	1505.56	101.1	0.02
X	2	36357	18.15	7441	2002.68	9.08	0.00

Amount of resources consumed by a command.

Descriptions of command-related information.

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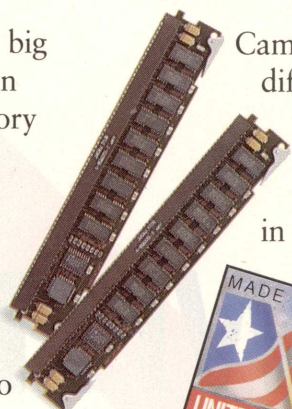
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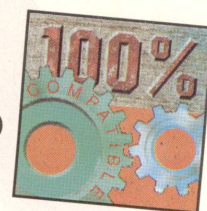
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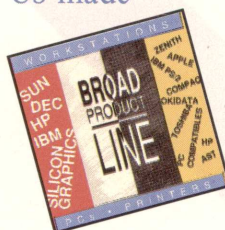


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† Hewlett-Packard's TurboSTORE/XL II™ User's Guide, second edition, P/N 36388-90001, p. 2-13

‡ Hewlett-Packard's "Increased System Availability With Optimal Backups" paper, 1991 Interex Conference Proceedings, p. 3118-4

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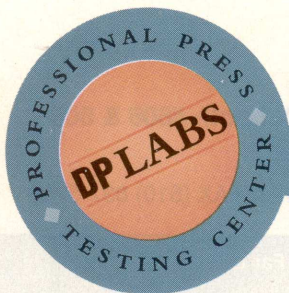


In June 1991, DP Labs and Testing Center initiated a new program. Called the Open Systems Partners Program (OSPP), its major goal is to allow vendors committed to open systems computing the opportunity to highlight their products in our Lab.

Another goal of OSPP is to try to get a grip on what "open systems" means, both within the context of the ultimate computing paradise promised by vendors and within the context of hard reality. In other words, we're willing to ride the rough open systems waters, take our lumps and enjoy our successes with hopes for a better understanding of where all this openness is leading us.

Many vendors have generously lent us hardware and software to test, write about and integrate into our Lab during the past 11 months. We look at open products with a critical eye. What does the product do? Does it adhere to industry standards within its product type? Will it enhance our multivendor, standards-based Lab and production network? Does it solve a current multivendor problem, or will it ward off a future snag? Is it a quick-fix solution, or will it be useful in the long haul? We try to answer these questions and more (such as, does the product actually *work*?) before we invite a vendor to participate in the program.

By David B. Miller



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FROM THE LAB

Several companies have joined the program. Let me give you a brief run-down of the products selected so far and how they are being used.

Hardware Honchos

You certainly can't compute without systems. Here, Hewlett-Packard and DEC have led the way by lending us work-

stations and servers running UNIX (HP-UX or ULTRIX) and VMS (a VAXstation 4000 Model 60), as well as X terminals (HP 700/X color X terminals). Adding these machines to our pre-existing VAXcluster and other UNIX boxes we own makes for a varied network. One of the newer boxes in the lab is the HP Apollo 9000 Model 710 workstation —

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the price/performance leader in the workstation market. DP Labs is also anticipating the arrival of an HP 3000 9X7, which will enable us to test a variety of MPE/iX-based products.

While not officially a member of OSPP, IBM has lent us an AS/400 Model D20, complete with TCP/IP services and (hold your breath) and Ethernet card (sacrilege!) to put on our network. The

Ethernet adapters from Xircom and Accton Technology. We have a Novell LANalyzer to help us keep the net in tune. To open our VAXBI bus to the world of SCSI, CMD Technology has allowed us to use a CQD-1000 host adapter. SCSI and memory subsystem vendor Kingston Technology lent us a

SCSI subsystem for review and supplied us with memory for our DECstations 3100 and 5000.

Software Stars

These days, it's easy to get things connected to your network. Ethernet and Token Ring technologies seem to be

Many people still think "networking" when they think of open systems, and indeed, we're acquiring a sizeable collection of networking hardware under OSPP.

D20 is getting a great workout and is used primarily for Lab reviews in *HP Professional's* sister publication, *MID-RANGE Systems*. We're now working with HP to obtain an HP 3000 running MPE/iX to augment our existing "classic" HP 3000. We're also working with IBM to get an RS/6000. So for now, the big three are well-represented in our multivendor Lab.

Many people still think "networking" when they think of open systems, and indeed, we're acquiring a sizeable collection of networking hardware under OSPP. Most of this falls into the terminal server realm (in UNIX parlance, they're called communications servers), but it's a start. We have communications servers from Emulex, Lantronix, Xylogics and Xyplex. They're all protocol-multilingual, so we can use them for both TCP/IP or LAT. We have a multi-function I/O board in one of our SCO UNIX boxes from Equinox Systems.

Other networking products include

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mature, stable and easy to use. Now maybe we can start thinking about what we're going to run over the wire.

Regarding software, the single biggest category has to be TCP/IP and communications products. I think this is in line with the industry as a whole. Distributed, client-server applications are popping up

now in several places — but go to any Interop trade show and you'll quickly find that "wiring" hardware and communications software still rule.

We have a variety of TCP/IP vendors in the Lab. Beame & Whiteside Software, Frontier Technologies, FTP Software, Network Research, TGV, The

Wollongong Group, and Walker Richer & Quinn are here already. We're now looking at Process Software as a future member.

Reflecting the state of the industry in general, there are many OSI-compliant products in the Lab. Ki Research's Kinet product takes a DECnet-style approach to managing UNIX systems, but it's really aiming at conquering any network, regardless of what it runs, even if TCP/IP is already on the system. As OSI becomes more prevalent, Ki will be ready with products that conform.

A couple of interesting products that have solved problems in the Lab are Innosoft's PMDF and InterCon Systems' Planet X. PMDF runs on the VAX and provides store and forward capabilities to all the machines on our network, whatever the mail or operating system. Thus, I can use the native mail system on the UNIX box on which I do most of my work without having to log into our VAX 8800.

Planet X eliminates the need for an editor to go to an artist's desk every time a consultation over a magazine page is needed. Planet X lets the artist send Mac screens over the network to anyone with an X terminal or a workstation running X. It's interactive, so the editor can discuss changes in real-time with the artist who is designing the layout.

We're always interested in trying IBM-to-the-rest-of-the-world connectivity products. So far, we have an OpenConnect Server from OpenConnect Systems to connect our IBM AS/400 Model B10 to our TCP/IP-DECnet network. Even though our AS/400 Model D20 came equipped with TCP/IP Services, OpenConnect Systems provided full-screen TELNET software that will allow us to use the 5250 terminals on the IBM side as VT-style terminals, instead of having to suffer with line mode.

We'll be looking at some mail applications solutions from Joiner Associates, as well. Hopefully, we'll be connecting our OfficeVision mail systems on our AS/400s with at least the VMSmail on our cluster.

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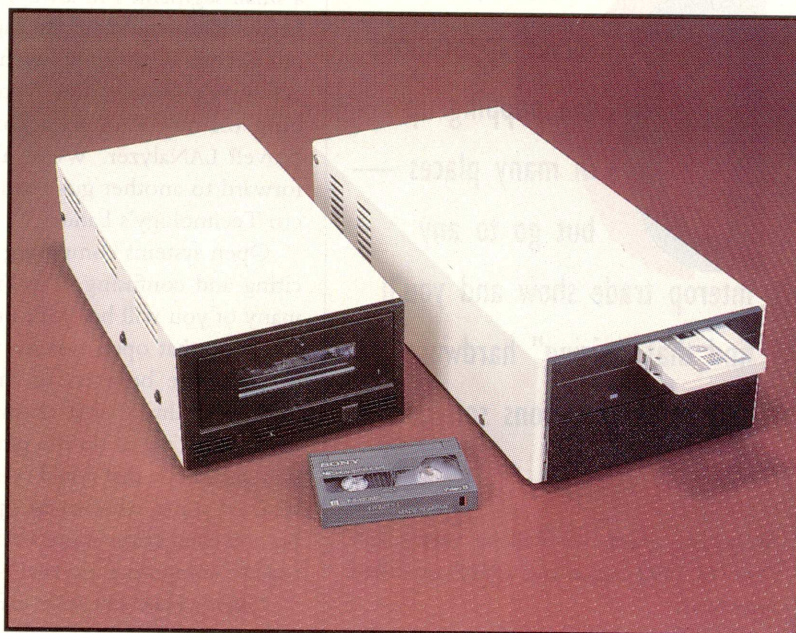


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ARSAP accounting package, which now runs on many platforms and uses the VAX as a central hub for resource accounting analysis and reporting.

To test all this, Neal Nelson and Associates has kindly lent us a Remote Terminal Emulator to help us simulate user loads and generate benchmark data. Visix Software has given us copies of its Looking Glass users interface.

Other members we'll be tapping for resources include Bluestone Consulting, which not only provides multivendor consulting services but also markets the UIM/X Professional OSF/Motif GUI builder; Recital, which sells a multivendor, distributed database system; and Eicon Technology, which develops and markets communications products for multivendor networks.

Open Systems will be a key phrase in sales literature for some time to come. That being the case, you can imagine the number of products we are asked to consider for OSPP. With limited time and

Distributed, client-server applications are popping up in many places — but go to any Interop trade show and you'll find that "wiring" hardware and communications software still rule.

magazine space, we will be very selective in 1992 regarding OSPP-qualified products.

I particularly like products that solve problems for us in the Lab or in MIS. For example, we're looking looking to beef up our Token Ring network and trying

to get more fiber into the lab, even if it's a small segment. I'm always looking for network management packages of various flavors. Right now, we have Demax Software's Connection Detective running on our VAX to accompany the Novell LANalyzer. We're also looking forward to another go-round with Micro Technology's Lance.

Open systems computing is both exciting and confusing. Yet I'm sure that many of you will bet your businesses on the hope that open systems will, at last, provide the benefits of multivendor interoperability that it claims it can deliver. We'll try to do the pioneering for you with hope that you'll be able to steer clear of some wide-open open systems potholes and cruise more safely down the road to computing nirvana. ■

Editor's note: For more information DP Laboratory and Testing Center, contact David B. Miller at 101 Witmer Rd., Horsham, PA 19044; (215) 957-4290 Internet: miller@procast.propress.com.

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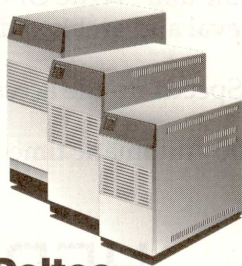
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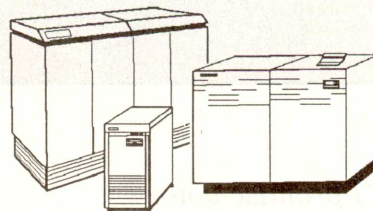
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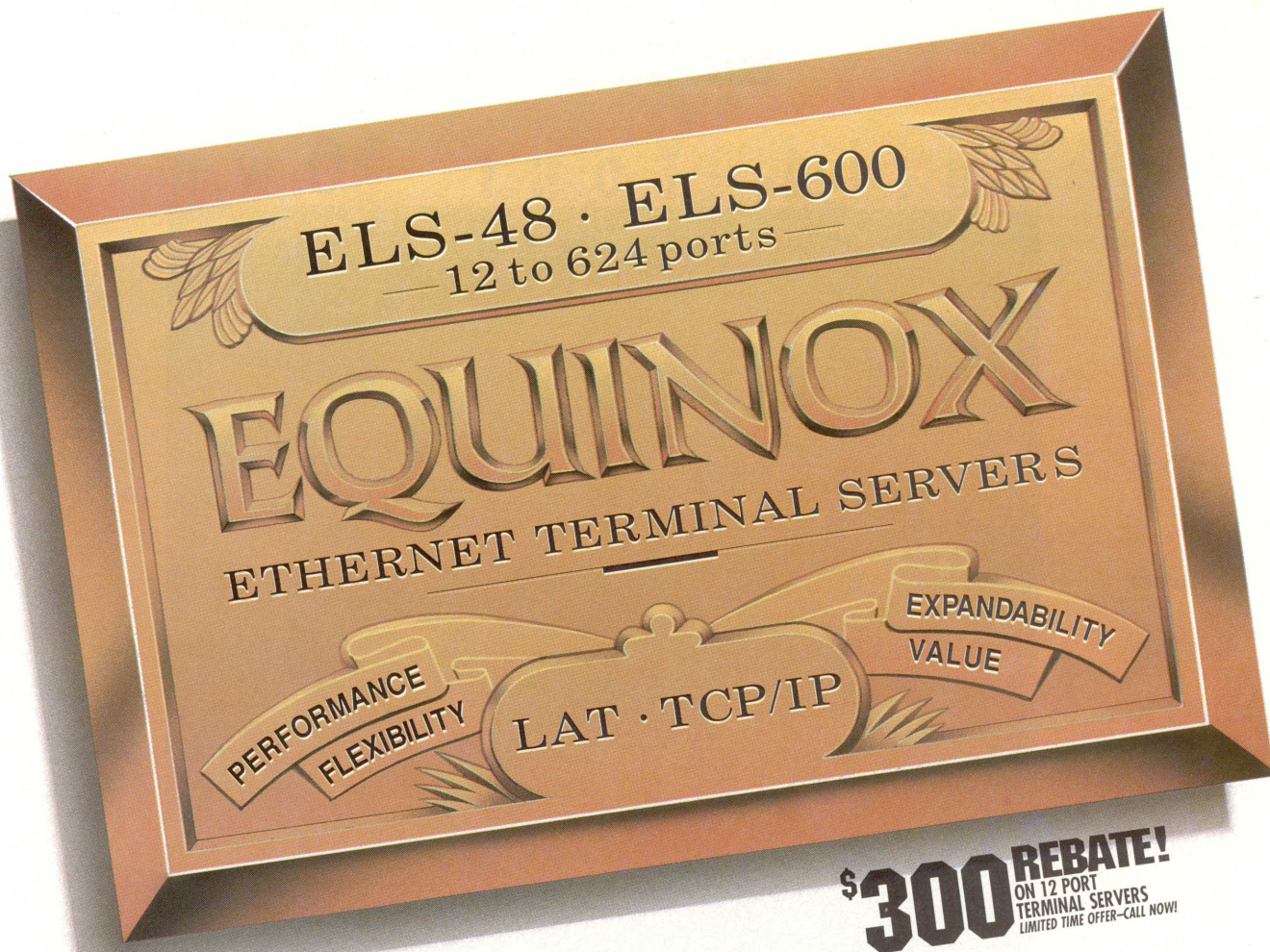


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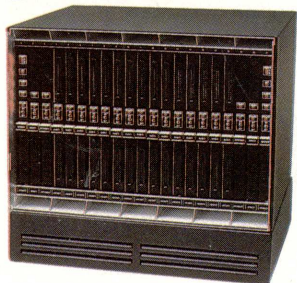
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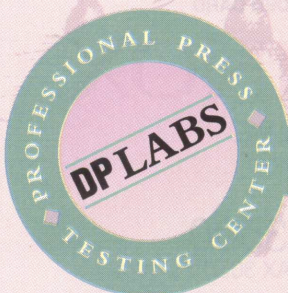
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The evolution of data processing has been toward greater complexity, disguised in more and more ingenious ways. As an example, consider the development of user interfaces. At their most primitive, they consisted of no more than a prompt to the user from an operating system. As time went on, programmers and users developed batch files that presented operators with menus of available operations, and channeled the choice of operation to the operating system to be executed. This way, the operator was given the means of dealing with an intimidating device in a way that was less

demanding with probably minimal technical skills.

With the introduction of the PC, the needs of yet another category of user had to be taken into account in developing person-machine interfaces. It was assumed that these new, even first-time users had little if any knowledge not only of data processing engineering, but also of the strict rules of logic and mathematics that constitute the grammar and syntax of a computer's native tongue. So, the windowing environment was conceived and born. Such environments allow even the most computer-illiterate

By Michele Petrovsky



FROM THE LAB

among us to interact with powerful and complex data processing tools almost as readily as the engineers who developed them.

From the Apple through Microsoft Windows to X-Windows and OSF/Motif, visually oriented user interfaces have become more common. Even the most extensive and cleverly devised of these, however, has the limitation of being application-specific. Unless you were, or had on-staff, a programmer capable of churning out complex screen-control and OS-manipulating code, your choice of graphical user interfaces (GUIs) was limited to those commercially available.

That limitation now has been removed. With the introduction of The Builder Xcessory from Integrated Computer Solutions (ICS; Cambridge, MA), anyone familiar with the X-Window system can create GUIs to any application.

Builder Specs

In order to successfully load and run the Builder Xcessory version 2.0 in an HP environment, you must have:

- An HP Apollo (Series 9000/400 or 9000/800) workstation running HP-UX Release 8.0 or higher.
- At least 10 MB of RAM available on that workstation.
- Release 3 or later of X11 (Release 4 or later if you plan to add user-defined widgets).
- OSF/Motif version 1.0.3 or later (versions 1.1.x are recommended if you intend to define your own widgets).
- A high-resolution graphics display (1024 by 768 required, 1280 by 1024 recommended).

Given the above, you're ready to begin building a valuable Xcessory to your system.

Installation Procedure

It's a bit difficult to give you a picture of the "usual" installation of the Builder Xcessory, because we had to depart from the available documentation in carrying out the load.

The distribution medium we'd received from ICS was a QIC tape whose

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format was compatible with the version of UNIX with which we have to work, but which was intended for an Apollo several generations older than the one designated to receive the Builder (400 vs. 800, to be specific).

So, we engaged in a bit of intra-net-

work sleight-of-hand in order to install this product. Had this mismatch not occurred, a simple **tar xvf**, followed by running a shellscript provided with the distribution medium, would have led us through loading, configuring and licensing (yes, licensing — the Builder is an-

Builder is an application that requires the added complications of obtaining a license or authorization for use, and of designating a License Server.

other one of those applications that requires you to deal with the added complications of obtaining a license or authorization for use, and of designating a License Server).

But, as it was, we had to drop the tape and organize the results by means of **rmshell** from another Apollo in our lab that was capable of reading the distribution tape. Licensing, on the other hand, proceeded as it ordinarily would, with a phone call to ICS to receive the appropriate authorization keys.

One additional caveat, though: The Builder behaves best when installed in the default file subsystems that include **/usr/lib/X11** and **/usr/bin/man**. On our Apollo, the root file system was near its capacity, and we therefore tried to load the product to another system. The installation took, but not all of the Builder's icons and functions were available to us. Only upon re-installing in the default file subsystems were we able to gain full access to the Builder's tools.

Tutorial Tasks

ICS includes, in the User Guide to the Builder Xcessory, a small glossary of terms needed by anyone attempting to use the product, and which would be handy to novices in windowing environments in general. That little dictionary would have been even more effective

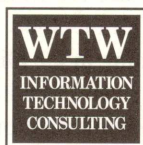


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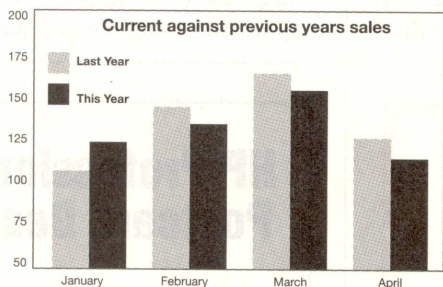
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ES DEPARTMENT ENGINEERING SERVICES J. SMITH

Financial Budgeting
FBL1001A
20.05.90
11.45a.m.

CURRENT PERIOD APR				LINE ITEM DESCRIPTION				YEAR-TO-DATE			
ACTUAL	BUDGET	VAR	VAR%	ACTUAL	BUDGET	VAR	VAR%	ACTUAL	BUDGET	VAR	VAR%
0.00	0.00	0.00	0.00	No. of Productives	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16630.16	23341.24	-6711.08	-28.75	Number of Management Staff	16630.16	23341.24	-6711.08	-28.75			
0.00	0.00	0.00	0.00	Number of Team Leaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26785.01	20.83	26764.18	<<<<<	Number Non Productive	26785.01	20.83	26764.18	<<<<<			
1200.11	5458.33	-4258.22	-78.01	Total Headcount	1200.11	5458.33	-4258.22	-78.01			
0.00	0.00	0.00	0.00	Management Salary	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Team Leaders Salary	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Non Productive Salary	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Non Productive Overtime	0.00	0.00	0.00	0.00			
2285.30	563.33	1761.97	291.77	Social Security	2285.30	563.33	1761.97	291.77			
0.00	0.00	0.00	0.00	Sick Pay	0.00	0.00	0.00	0.00			
3737.19	3265.16	472.03	14.46	Holiday Pay	3737.19	3265.16	472.03	14.46			
2530.16	0.00	2530.16	0.00	Life Assurance	2530.16	0.00	2530.16	0.00			
0.00	0.00	0.00	0.00	Pensions	0.00	0.00	0.00	0.00			
-1340.66	-6116.00	4775.34	-78.08	Labor Transfers	-1340.66	-1661.00	4775.34	-78.08			
0.00	0.00	0.00	0.00	Recovery Transfers	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Recovery	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Total Salaries and Expenses	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Canteen	0.00	0.00	0.00	0.00			
3724.46	0.00	3724.46	<<<<<	Training Costs	3724.46	0.00	3724.46	<<<<<			
0.00	0.00	0.00	0.00	Cop Costs	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Advertising Appointments	0.00	0.00	0.00	0.00			
127.28	0.00	127.28	<<<<<	Social Events	127.28	0.00	127.28	<<<<<			
0.00	0.00	0.00	0.00	Total Employee Support	0.00	0.00	0.00	0.00			
48843.37	70053.44	-21100.07	-30.12	Staff Expenses	48843.37	70053.44	-21100.07	-30.12			
0.00	0.00	0.00	0.00	Total Staff Expenses	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Work Area	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Maintenance Facilities & Buildings	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Maintenance Plant & Equipment	0.00	0.00	0.00	0.00			
0.00	0.00	0.00	0.00	Tools	0.00	0.00	0.00	0.00			
18031.97	23940.00	-5908.03	-24.68	Special Revenue Labor	18031.97	23940.00	-5908.03	-24.68			
0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00			

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had it included additional GUI terms. For those people who aren't windows-sophisticated but who have nevertheless been given the responsibility for creating something (most likely in a hurry) with the Builder, a concise but complete compendium of its terminology would have been more appropriate.

At first, operating the Builder seemed cumbersome too, because of this small deficiency in the application's documentation. But this is about the only shortcoming that we found. In every other area, particularly in the structure of its tutorials for the X-uninitiated, ICS has done a fine job. These tutorials were the basis for our lab work with the product. They are extensive and in-depth.

"Simple Objects" is the title of the first such tutorial. The ubiquitous "they" weren't kidding when the title was created. This session begins with instructions in starting the Builder (with the com-

ICS includes a small glossary of terms needed by anyone attempting to use the product.

mand **bx** entered at the HP-UX prompt); proceeds through working with the package's pull-down menus; instructs in redirecting output (by leading you through appropriate entries to the Output File Names dialogue box); helps you construct a bulletin board and two push buttons that will later serve as the basis for a completed GUI; and presents the user with detailed instructions for generating and compiling the C code that the Builder Xcessory creates, and which

in turn forms the functional basis of any GUIs it devises. Because we were working with a "limited license" version of the Builder, we didn't actually create that code. We did, however, walk through all the steps leading to that creation, and breezed through this first exercise in no time.

Tutorial Two dealt with creating a menu bar, using the Resource Editor to change the characteristics of that bar's buttons, and using the Resource Editor

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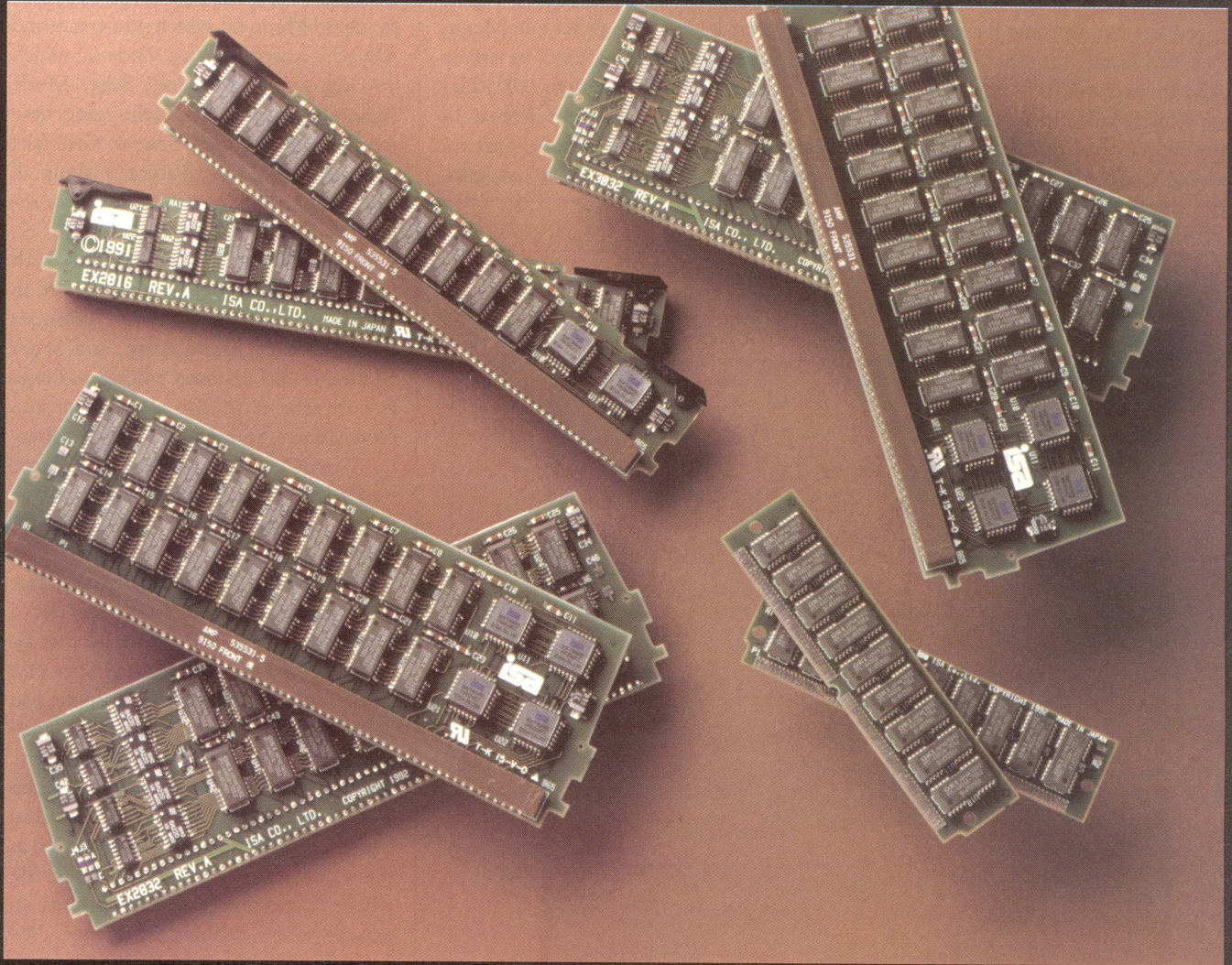
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afresh — this time to associate X-Windows utilities with specific buttons.

One very handy tool that the Builder employs throughout its Tutorials, and of course which makes up an elemental part of the working application, is the Browser. The Browser can give you an

organizational chart of any widgets you've created. Through its File Menu, it enables you to open, read or create new User Interface Language (UIL) files or C code files. The Edit Menu of Browser allows you to cut from, paste to, copy or delete collections of widgets.

Browser's View Menu contains selections for Build Mode (in which you create and edit your interface), Play Mode (in which you try a new interface), Saber Mode (wherein running and debugging new interfaces takes place), Snap to Grid (aka align widgets), Keep Parent (making all new widgets children of the currently selected widget), and more.

Tutorials Three through Six dealt with some of the ideas just mentioned in the context of the Browser. Number Three presents Build, Play, and Saber Modes. It also discusses editing and testing interfaces in the absence of the CodeCenter, formerly known as Saber-C. (CodeCenter is a utility that allows you to build and debug an interface without compiling the underlying C code.)

Lesson Four deals with creating dialog boxes. Five introduces the student to working with the Style Manager that allows you to save the characteristics of a "look" so that they can be re-applied to other widgets, thereby providing a consistent appearance to an overall interface. Tutorial Six presents advanced Builder Topics such as creating header files. These are definitions of widgets stored as the C datatype "structure," in a file whose .h extension will be familiar to anyone who's dabbled in C code. We went through all of the Builder's tutorials in at least some part, found them all to be well-documented and logically laid out, and considered them to be a useful introduction to the application. ■

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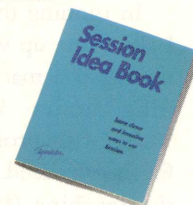
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APOLLO

Fred Mallett

I have come across a new graphics performance test

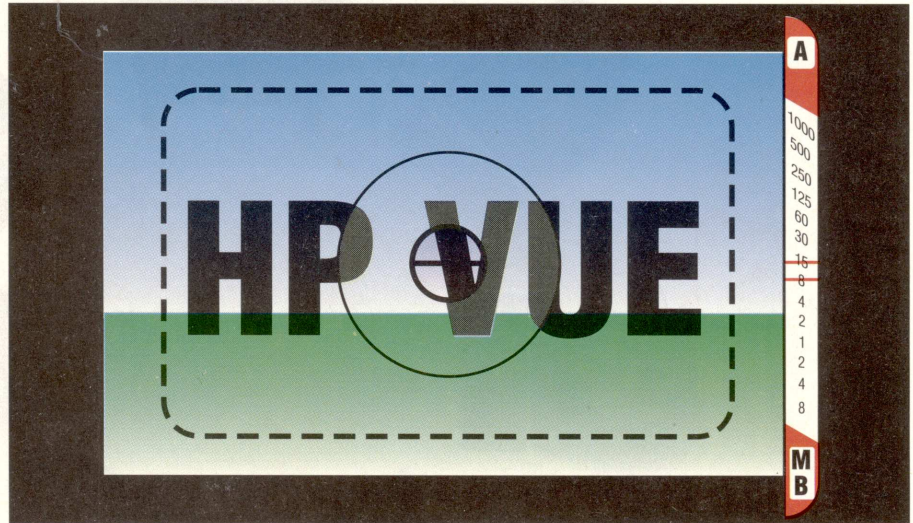
that removes all the tedium of performing benchmarks. The units of measurement are called FREDSTONES. Here's how it works. Just sit at a workstation running X, start HP VUE and then open a new application. While waiting for the new window to open, count the number of Hershey's Kisses (almond or regular) you can fully unwrap and eat until the window opens.

Like all tests, there's a problem with this one. Last week I was setting up for an "Administrative Transition to HP-UX" class, where we try to make the HP-UX and Domain/OS machines look identical and function together in the network.

Well, one of our DN2500s was down, so I grabbed a DN3000 with 6 MB main memory. For this example I wanted both the S705 (HP-UX) and the DN3000 to be running HP VUE. VUE on a DN3000 with 6 MB? You say impossible? Not! It really does run fine. Everything I tried did work. The problem was, it measured out at 67 FREDSTONES to open the StyleManager. I felt rather sick by the time I had tested all the applications I would be comparing. (I also had devoured my entire monthly stash of Hershey's Kisses, which is substantial).

In running this DN3000 under VUE, I also came up with a method of determining if a machine is capable of running under VUE. Login at the VUELOGIN prompt, and then go home for the weekend. On Monday, shutdown the machine (It's quicker to pull the power cord). Now, look at the screen. My DN3000 has VUE's wait symbol of an hourglass burned into the phosphor.

A Point On VUE



This unit of measurement is called a VUESTONE. One VUESTONE means don't run VUE here.

DN. MOLDY Turned Xterminal

The solution to my problem may be one that some of you can use. I decided to run the VUE session on the Series 700, and have it shown on the DN3000's display. This seemed trivial as this is standard X windows display sharing. I thought maybe a **hpvue2 -Display dn3000:0** would do it. Not! First, there is no **hpvue2** command on the HP-UX machine. After some research and some pointers from Jim Rice of HP in St. Paul, MN, I came up with these steps. (In these steps assume: hpux is the host name of the Series 700, dn3000 is the hostname of the DN3000.)

1. On hpux edit /usr/lib/X11/vue/Vuelogin/Xservers This file lists the X servers (terminals) this machine will run "vuelogin" for. Add the following line:

```
dn3000:0 foreign
```

2. On dn3000, you must edit /etc/rc (be careful) to start "/etc/Xdomain" with

no options or config files so that it will have no window manager. This will allow VUE on the hpux to start a window manager for it (VUE).

3. Next, be sure you have allowed remote server displays, by adding the name of hosts allowed to display on this machine, by editing the file /etc/X0.hosts in this example it must contain a line "hpux." Also, to prevent DM startup, you must edit the "/etc/ttyt" file and turn "/etc/dm_or_smp" off. (see the note below)

4. Re-boot the Domain machine, it will hang at the X root window (grey stipling). Smile, this is good.

5. Send a HUP signal to hpux's lowest PID "vuelogin" process.

```
# ps -ae | fgrep vuelogin | sort -n | head -1
166 ? 0:00 ###vuelogin
# kill -1 166
```

If all went well, the VUE login should appear on the DN3000, but the program is running on the Series 700. An important note here is that the login will be validated by the HP-UX machine, and that you are an HP-UX root, not a Do-

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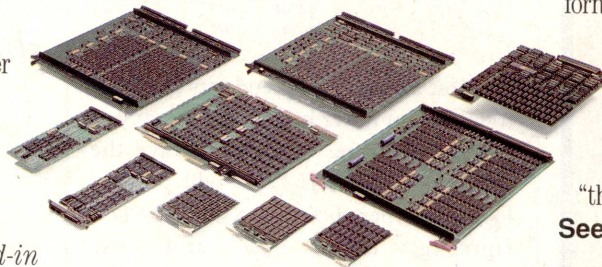
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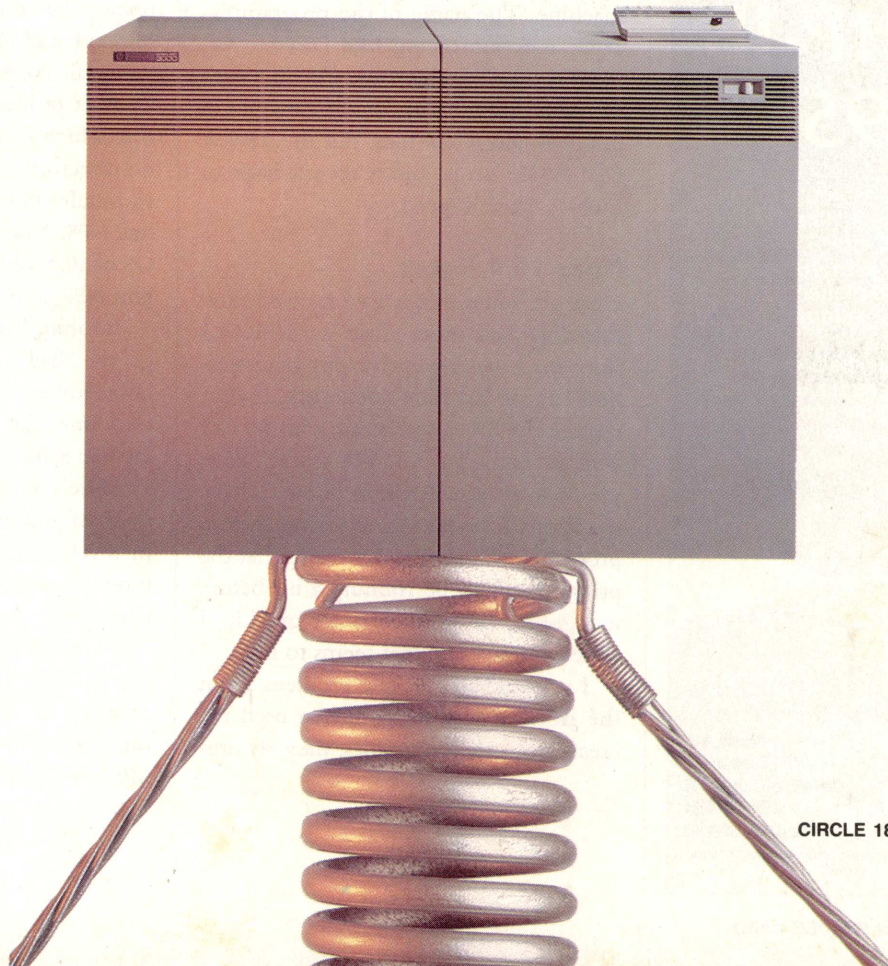
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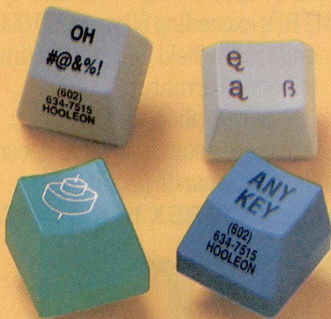
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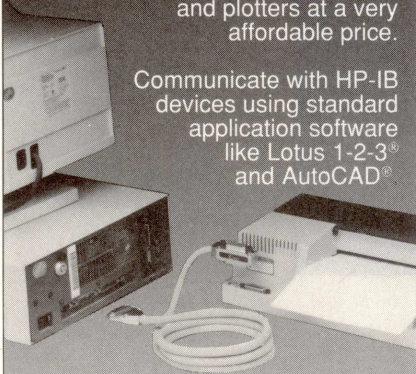
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main/OS root if you login that way. Another tricky aspect is shutting the DN down, the processes you see on the screen are running on the HP-UX machine. This means you must allow roots logins over the network in order to use the "/etc/shutdown" command. To enable root "rlogin"s you must add the following lines to the /etc/tty's file:

ttyp0	none	dumb	off	secure
ttyp1	none	dumb	off	secure

Most admins add pseudo tty's, (ttyp0-ttypf) as you never know which ttyp you will get for sure. Be sure to leave the "off" field "off" as "on" will prevent login. Another choice is to leave the DM running under X, and use <shift><Ctrl><fq> to get back to the DM prompt, either to use the DM or just to be able to shut it down.

This exercise got me wondering where we are heading in the GUI industry. Seems we should be getting faster. Seven years ago there was a new node called a DN3000. If you put 4 or 8 MB of main memory in it, you had nearly instantaneous visual response in the graphics window system running on that machine. The name of the program escapes me, something like DM-Heavy. Now we can take the same machine with the same program under the newest OS (SR10.4) and it still flies. Put the newest GUI (VUE) on it, and it reverts back to Etch-A-Sketch speed.

More 10.4 Notes

Here are some things I've noticed now that I've had more time with SR10.4 since last issue. The prsvr/prmgr suggestion I made last time does work, that is, replace the SR10.4 versions with SR10.3 versions as the 10.4s do not work. I have yet to hear of a patch/fix for it. I have occasionally experienced some startup problems with this, and it seems that the prmgr needs to be running a bit before it registers the prsvr's printer quickly. I added a delay, and that seems to fix it.

I was told an amusing problem about the **mkdev** command. When used the create/recreate the tty files, they are cre-

*Where are we
heading in the GUI
industry? Seems we
should be getting
better performance.*

ated with a mode of 644, which will prevent you from ever logging into this node again. Luckily, Ted Heisler of HP in St. Paul, MN, had a network to fix the modes, or it was re-load time. Moral: after creating ttys, check the modes of the files it creates against another (functional) node.

A bug still in the install++ area is as follows: I tried to install SR10.4 and NFS at the same time to a newly involved node. The config file had both products selected, and install++ showed the order of install correct, that is 1 (OS 2) NFS. Then it proceeded to try to install NFS first which of course failed as there was no directory structure on the disk. I had to install OS first, then go back and install NFS. Note, I installed an AA, the full OS of 10.4, only 2 SAU directories (8+9), plus NFS, and this took up 175 MB.

Booting a machine diskless you still get the "bad config file" error on the first boot, just re-try and it makes it the second time. (By the way, the release notes say this is fixed, but not on my version.)

Here's another cute problem I hope none of you experience. I hope it's only in SAU8, and SAU9, which comprises most of our machines. This is the scenario:

Everything is working, so I decide to copy a very large directory to another machine (/install which is an AA, I also did it with my home directory of ~140 MB). While this is happily copying, I de-

cide to do some other work, but when I open my interleaf icon, just a white box appears. Then I go to a shell, every command returns a prompt, no output. Pop a new shell and it works. Wait a while, try that new shell, and it gives no output. I thought this was kinda neat, until I got the machine to hang. The bad part is that I was able to get the machine to hang quite regularly whenever it was severely loaded. (Took me seven tries to get the directory copied, because I kept trying to see if the problem was a fluke. It wasn't!)

A Traitor Among Us?

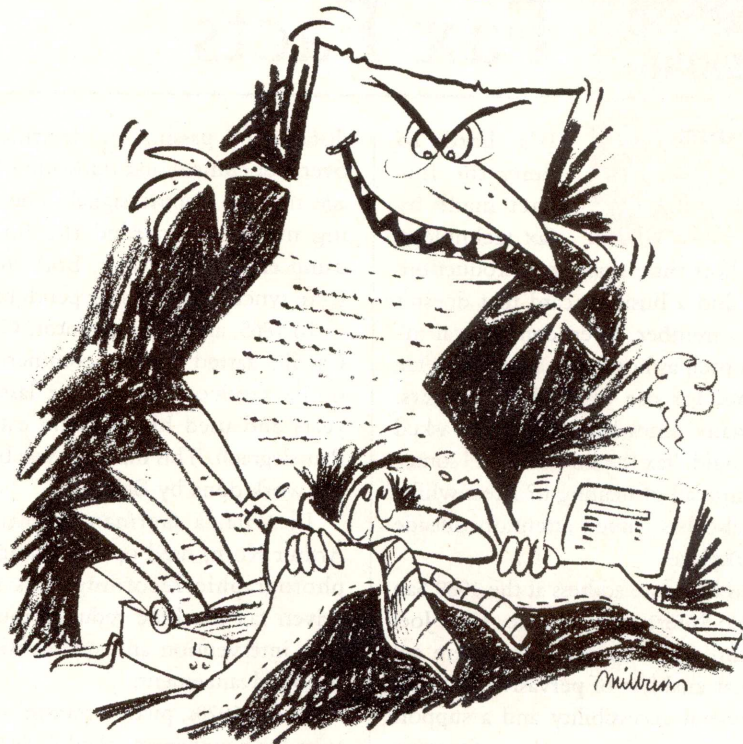
I feel like a traitor talking about HP-UX in this Apollo column, so I will offer a few notes, and wait for the avalanche. If it is comprised of warm praise, requests for more HP-UX info, and money, I will start talking about HP-UX transition issues in future articles. If perhaps I sound like an HP employee, a traitor, or send SR9 patch tapes, I will leave HP-UX notes out in the future.

So as a test, here is an HP-UX note for those of you dealing with integrating HP-UX into your network.

The most important one is an explanation of the HP-UX mouse for those of you who have pondered it after unpacking your first Series 700. There are two theories. The first is that this is a theft-proof mouse. But, you must install it properly. Step 1: Plug the cord into the keyboard. Step 2: Wrap the mouse cord around the monitor 27 times (It will go 30, but leave enough cord so you can use the mouse from the restroom). This will prevent theft of your mouse, as it takes too long to unwrap, besides, a thief can't hide 30 feet of cord as they sneak away. The second theory is that they shipped me special mice, as I live in a coastline known to have hurricanes, and this is the "Hurricane tie-down" option "YIKES!". — Fred Mallett is president of FAME Computer Education in Corpus Cristi, TX and an Interworks board member.

Would you like to continue to see articles on this topic?
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CIRCLE 286 ON READER CARD



NETWORKING

Tim Cahoon

What Do You Get When You Cross A Photocopier With A Phone?

Fax Facts

It's hard to deny the impact made by fax technology

in the short time since its introduction. Try to find a business card that doesn't list a fax number. Even commercial industries such as hotels are advertising fax machines for use by their customers. How many times have you been asked if you could "fax the information" somewhere instead of mailing it? Meanwhile, faxing also has gained attention outside the workplace.

In his key note address at the 1989 San Francisco Interex conference, HP's Joel Birnbaum said, "In my view, there are two great enablers of pervasive technology: general accessibility and a support infrastructure rich enough in function and standard enough in implementation to support its widespread dispersion."

Fax technology certainly fits this definition. One reason is the simplicity of the user interface. A traditional fax machine combines of the two most common office machines, the photocopier and the telephone. If you can use both, then you can send a fax. Fax technology also is supported by true international communications standards and our global telephone system. The growth of the fax industry has reduced prices such that almost anyone can afford a machine.

Historical Fax

Most people believe that the fax is a product of the 20th century. The fax actually was invented more than 100 years ago. According to the "HP Facsimile Technology Guide," fax technology can be traced to 1843 when a Scottish physicist, Alexander Bain, patented a recording telegraph. The sending machine could transmit a crude image over a short

distance by passing an electrified wire over a document and translating the image into an electric signal. The receiving machine recorded the image on damp electrolytic paper. Both machines were synchronized using pendulums.

In 1865, an Italian inventor, Giovanni Caselli, started the first commercial facsimile service. The service lasted five years and used his machine called the Pantelegraph. This machine was based on the work done by Bain.

In 1902, a German scientist, Dr. Arthur Korn, used optical scanning and photographic recording. His motor-driven fax machine reduced much human intervention and was considered a major advancement.

In the 1920s, picture transmission systems for newspapers called "Wirephoto" and "Radiophoto" networks were developed. These transmitted news photos and weather maps and are still in use today.

Because of the complicated nature of the machine the special training required for fax operators, and the photographic processing needed to complete the pro-

cess, fax technology advanced slowly over the next 60 years.

Today's Fax

Advances in printing technologies (i.e., laser, thermal and ink jet), and in semiconductors, have made the fax easier to use and more affordable.

You cannot have a pervasive technology without a standard implementation. Fortunately, the Consultative Committee on International Telegraphy and Telephony (CCITT) has set international standards for fax. Fax machines are now categorized by Groups (1,2,3,4), defined by CCITT standards.

Groups 1 & 2 are relatively slow, and provide poor reproductions. These machines convert scanned digital images into an analog signal that passed over telephone lines to a modem.

Group 3 is the standard that holds over 90 percent of today's market. It features faster transmission speed than the older Group 1 and Group 2 standards. This is accomplished through an encoding scheme used to send the data. Group 3 machines can use one of two coding schemes. They are known as the Modified Read (MR) and the Modified Huffman (MH) methods. Many Group 3 machines use the Modified Modified Read (MMR) scheme defined for Group 4 machines. As with the older machines, this Group converts digital signals into an analog signal by way of a modem.

Group 4 is a true digital standard. It is for use with ISDN or other digital networks. Because of this, there's no need to convert the picture into an analog signal. Because of the analog nature of existing phone networks, Group 4 machines are not yet common.

As with all standards, there remains



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CIRCLE 108 ON READER CARD

room for improvement. Some manufacturers have added innovation enhancements to their machines, but such advances are wasted when the machine transmits to one that does not support the enhancements. One such common enhancement is the ability to send, receive and print documents at 300 by 300 dots-per-inch (dpi) resolution. Another such feature is "Error Correction Mode" to help eliminate the effects of line noise during transmission. Vendors are usually careful to ensure that when machines with their enhancements communicate with machines without them, normal CCITT standards are followed.

Basic Fax

When sending a document, the fax machine undergoes a process familiar to those who work with networks. Faxing uses a special handshaking sequence to setup the transmission and actually send the information.

The first part of a transmission involves dialing the fax number to the remote machine. The sending machine uses a special high pitch tone (like a modem) to identify itself as a fax machine. The receiving machine uses a different tone to identify itself.

Next, the receiving machine sends information that describes its capabilities. This verifies that the machines are the same group type as described above. It also lets the sending fax know if it can use any of the special enhancements during transmission. Both machines then send signals back and forth to test the line and the ability to understand what the other is sending.

The sending machine then scans and sends the actual document. When transmission is complete, the remote machine is notified. The remote machine then responds with a confirmation and the call is terminated.

One last thought. I recently posted a

question on the CompuServe Telecom forum asking for comments regarding fax technology. Here's an interesting response. He stated that the success of the fax spells the doom of electronic mail. The fax doesn't require special computer networks, software, terminals or computers — just a simple machine and a telephone line. How can E-mail compete with something so pervasive? He also stated that the success of fax is because of the absence of data processing from its deployment. Most fax machines are brought into and maintained by the office manager not the MIS department. Would fax be as popular today if MIS was in charge of it?

Two good questions to think about. — *Tim Cahoon provides wide area network and HP technical support for the manufacturing operations of a Fortune 500 company.*

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CIRCLE 173 ON READER CARD

EISA Expansion Box Enhances HP's 9000 Series 700s

Danford Corp. introduced the EEB-4700, EISA Expansion Box, that provides intelligent EISA Bus expansion for HP's 9000 Series 700 workstations. The EEB-4700 expands the single EISA slot in the HP Models 720 and 730 systems into seven full-featured EISA slots.

The EEB-4700 enhances the expansion ability of the Series 700 workstation by adding more EISA slots for interfacing I/O boards. The EEB-4700 holds up to seven EISA cards and allows the user to mix and match EISA, AT and XT cards.

EISA and ISA cards installed in the EEB-4700 function as if installed in the host workstation, ensuring completely transparent operation. The slots in the EEB-4700 are compliant with the EISA specification, and support both EISA master and slave operation. Each slot also supports EISA auto-configuration.

The EEB-4700 is priced at \$3,750. The EEB-4700 includes an EISA buffer card, expansion chassis, documentation, necessary cabling and software.

Contact Danford Corp., 350 W. 5th St., San Pedro, CA 90731; (213) 514-9334.

Circle 399 on reader card

HP Introduces 600 DPI Inkjet Plotter

HP announced the HP DesignJet 600 plotter, a high-resolution monochrome inkjet plotter for fast output with minimal user intervention. The new plotter that uses commonly available media, offers better print quality, broader connectivity and greater functionality at a lower price than its predecessor.

The HP DesignJet 600 plotter, which replaces the HP DesignJet plotter, is available in two models — E size (36-inch wide) for \$9,995 and D size (24-inch wide) for \$8,495. The original DesignJet plotter was \$10,995.

The HP DesignJet 600 plotter comes with

4 MB of memory and can be upgraded to 20 MB in increments of 4 MB or 8 MB.

The queuing feature works as an internal spooler, removing the need for an external server or spooler. With 20 MB of memory, an HP DesignJet 600 plotter can store up to 32 plots in the queue.

The plotter used two of the easy-to-replace HP DeskJet print cartridges at a time.

Network Research Improves Security For HP 9000 Servers

Network Research implemented a new login security mechanism in Version 3.4 of FUSION for HP. The software release assures that only authorized clients can access data.

Additional features provided in Version 3.4 include two user preference commands for a File Transfer Protocol (FTP) session: uppercase and semicolon. These user preference commands help the HP server to process file names and types from non-HP systems.

FUSION for HP gives HP 9000 series users file transfer and virtual terminal (telnet) capabilities between their systems and DEC VAXes, IBM mainframes, UNIX work-

stations, PCs running XENIX or DOS, other HP 9000s and HP-UX systems. FUSION also can run in conjunction with a Shared Resource Management/UNIX (SRM/UX) network.

FUSION for HP Version 3.4 supports HP's Rocky Mountain BASIC operating systems (releases 5.0-6.0) and HP PASCAL (releases 3.2+).

Price is \$795, or \$1,195 when packaged with the optional Application Programming Interface (API). Current users can upgrade to Version 3.4 for \$159.

Contact Network Research Corp., 2380 N. Rose Ave., Oxnard, CA 93030; (805) 485-2700.

Circle 398 on reader card

Insight Development Ships PrintAPlot 3.0

Insight Development Corp. shipped PrintAPlot 3.0. It now includes a pop-up utility and a networking feature that allow users to print over Novell networks. In addition, PrintAPlot 3.0 supports hundreds of printers, including new printers from HP, Canon, Lexmark, Toshiba and Epson.



**HP's
DesignJet
600 plotter.**

PrintAPlot is a plotter utility that lets you use a variety of printers as a substitute for plotters. PrintAPlot allows users to print HP-GL files to virtually any printer to create drafts and even final versions of charts or graphics.

PrintAPlot version 3.0 offers an optional new TSR pop-up utility that allows users to configure their plotter jobs without having to exit from their applications. In addition, users can specify job set-up parameters such as pen width and color (for color printers) allowing users to return to their application almost immediately after issuing the print command.

Users now can send their jobs directly to NetWare print queues, bypassing the complex set-up procedures typically required to print over networks. Users can queue multiple graphics files for unattended printing to local printers or to NetWare print queues.

PrintAPlot is priced at \$199.

Contact Insight Development Corp., 2200 Powell St., Ste. 500, Emeryville, CA 94608; (510) 652-4115.

Circle 397 on reader card

Workstation Source Offers WLZ-320

Workstation Source announced a networking interface card for Series 200 and the older Series 300 HP computers. The WLZ-320 is functionally identical to HP's 98643A, with several additional features. It takes less power enabling it to be used in the HP Series 200 Model 16 unlike HPs that overload the 12V supply. In addition to the Thick MAU found on the HP board, it has a built-in BNC connector for connection to the thin version of Ethernet (ThinNet).

Another feature is a "boot ROM extension" that lets older computers talk over the Ethernet even before any operating system is loaded. This enables Series 200 and Series 300 computers to boot over the Ethernet LAN from a central server. The Ether board can be used for connecting BASIC and Pascal workstations to HP's SRM/UX networking system at up to 10 Mbps. In addition, software is available for

connecting to an TCP/IP-based system such as a DEC VAX.

Contact Workstation Source, 16 Auckland Close, Maidenhead, Berkshire, SL6 8QB, England; (0628) 75252.

Circle 394 on reader card

Rosetta Ships RT4030 Series Printers

Rosetta Technologies Corp. shipped its RT4030 Series Page Printers. The RT4030 Series LED printers feature rated speeds of 30 pages per minute and 150,000 page per month duty cycles with straight-through paper paths, and paper capacities up to 1,750 sheets from dual bins. These high duty cycle printers are specifically designed for multiuser, high production environment.

Both Simplex and Duplex Page Printers for DEC installations are available with either a 16 MHz controller or a 33 MHz RISC-based controller, and upgradable RAM. LNO3+ or HP PCL5 emulation is standard. An optional PostScript interpreter, and SCSI internal hard drive are available.

Prices range from \$14,595 for the RT4230 to \$23,995 for a fully configured RT 4530 Duplex Printer with PostScript.

Contact Rosetta Technologies Corp., 9417 Princess Palm Ave., Tampa, FL 33619; (800) 937-4224.

Circle 393 on reader card

HP Announces Vectra 486U PC Series

HP introduced the HP Vectra 486U PC series. The PCs incorporate the latest local bus, graphics accelerated video technology and industry-leading chip upgrade flexibility to provide users with unprecedented graphics and system performance.

The new models are the HP Vectra 486/25U, 486/33U and the Intel 486 DX2-based 486/50U PC.

The extended industry standard architecture (EISA)-based HP Vectra 486U PC series includes a 32- or 64-bit architecture

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with four separate data paths to remove information bottlenecks among the microprocessor, cache memory, system memory, video, hard-disk drive and other I/O functions.

All systems include a 128 KB external write-through cache on the system board and four levels of write buffers. This external cache allows users to upgrade from a 25 MHz 486SX-based PC to a 66 MHz 486 DX2-based PC without limiting CPU or video performance gain.

Price is \$2,999 for the HP Vectra 486/25U, \$3,499 for the HP Vectra 486/33U, and \$4,199 for the HP Vectra 486/50U.

ROBERTS Information Systems Introduces FASTman/3000

ROBERTS Information Systems Inc. announced the arrival of FASTman/3000, the Fixed Asset Manager for the HP 3000.

FASTman handles the accounting functions of fixed asset management, automatically maintaining parallel books for tax and management purposes. It calculates depreciation, and maintains adjusted basis values, according to both IRS requirements

and generally accepted accounting principles. FASTman also calculates the alternative minimum tax depreciation adjustment for 4626, 6251 or 8656.

FASTman handles any fiscal year and automatically adjusts first- and last-year depreciation according to the appropriate convention (the special MACRS mid-quarter convention rule is applied automatically at year-end).

FASTman allows changes to asset information (including basis, useful life, and depreciation method) at any time, and provides a "rollover" feature for assets which have been substantially altered or re-capitalized.

Contact ROBERTS Information Systems Inc., P.O. Box 25, Powell Butte, OR 97753; (503) 548-4394.

Circle 388 on reader card

HP Introduces Vectra 386/25N PC

HP introduced the most powerful member of its family of network-ready PCs, the HP Vectra 386/25N PC.

The new HP Vectra PC simplifies

network use and management and reduces the long-term cost of network administration. The HP Vectra 386/25N PC is ideal for corporate computing environments in which the costs that PCs place on a network — support, maintenance and management — are as important as the initial price.

The new 25 MHz Intel 386 SX microprocessor-based HP Vectra 386/25N PC is designed to address the specific requirements of systems administrators and end users in networked environments. HP tests the industry-standard PCs with all leading network operating systems, applications and network-adaptor cards to ensure trouble-free operation in complex network environments. All HP Vectra 386/25N PC models configure with disk-drives also come with bundles Microsoft Windows version 3.1, MS-DOS 5.0 and a mouse.

Price is \$1,149.

Cumulus Technology Provides Windowing On UNIX

Cumulus Technology's Window Manager application, AlphaDesktop, is compliant with the AlphaWindow standard, incorporates

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client-server technology and offers a built-in customization package for personalizing window manager functions to user needs.

AlphaDesktop provides a variety of windowing look-and-feel functions. With Main Menu, for instance, open applications are displayed as full-screen, stacked, or tiled windows, allowing users to group applications to fit needs. AlphaDesktop lets users move, resize or "select" all windows, menus, and other on-screen features with either the click of a mouse or hot key commands. Users can copy-and-paste information between different applications — moving from an accounting system to a spreadsheet format, for example, without re-keying.

AlphaDesktop Window Manager is available for most UNIX open system environments, including HP-UX. The AlphaDesktop software is priced at \$150 for two users.

Contact Cumulus Technology Corp., 1007 Elwell Court, Palo Alto, CA 94303; (415) 960-3522.

Circle 392 on reader card

Hermes SoftLab Introduces GRACE

Hermes SoftLab announced GRACE (General Reliable Application Connecting Environment), a high-level software tool for developing distributed applications on platforms supporting NCS. GRACE has been designed for application programmers who need a tool to configure and maintain a client-server application. It provides reliable message transfer, timeout handling, random or sequential message access and a sophisticated queuing mechanism. GRACE with its ready-to-run utilities for sending, receiving and managing messages provides a simple message manipulation system. For the advanced application programmer a rich set of API commands provide access to all functions provided by GRACE.

With its queuing mechanism, GRACE automatically handles network failures and together with its logging and error recovery system ensures that data is not lost in case of system failures.

GRACE is available on HP-UX platforms.

Contact Hermes SoftLab, Celovska 73, 61000 Ljubljana, Slovenia; 38 61 558-493.

Circle 375 on reader card

Cadre Technology Inc. Announces Teamwork 4.1

Cadre Technologies Inc. introduces Teamwork 4.1, the latest version of its Teamwork CASE tool.

The features and enhancements in Teamwork 4.1 include Teamwork/OOD and Teamwork/HOOD for object-oriented design, Teamwork/DocGen for documentation, and on-line product help. Also, the latest version of Teamwork/RqT for requirements traceability and maintenance is available and compatible with Teamwork 4.1.

Teamwork 4.1 is available for HP 300/400 workstations and Sun SPARCstations. Price starts at \$8,500 depending on configuration.

Contact Cadre Technologies Inc., 222 Richmond St., Providence, RI 02903; (401) 351-CASE.

Circle 391 on reader card

NSD Updates JobRescue

NSD Inc. released the new 5.1 version of JobRescue, a job management and error detection program for use in batch processing environments.

JobRescue's access to the spool system has been improved to provide better performance and reduce system overhead.

Another upgraded feature is in the distribution list module. The release has the power to broadcast a report to multiple devices and multiple users simultaneously, and offers a user-defined banner page.

JobRescue now allows users to take advantage of a new gateway into HP DeskManager. The new "type 4" gateway allows users to specify individuals to receive JobRescue mail as opposed to the distribution lists featured in the "type 2" gateway.

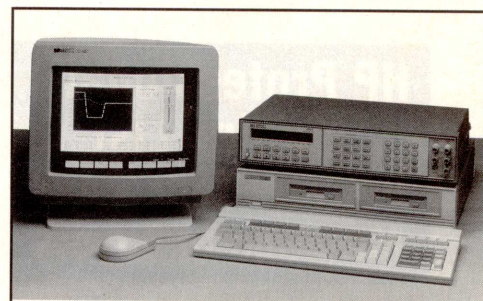
Other features have been upgraded including: improvements to the LIST command; wildcard purging of saved reports and \$STDLISTs; communications updates; report mode changes; and more power over conditional MPE command executors.

Contact NSD, 1400 Fashion Island, 4th Fl., San Mateo, CA 94404; (415) 573-5923.

Circle 390 on reader card

U.S. Holland House Announces Vantage

U.S. Holland House announced Vantage, a system that consolidates the management of multiple system consoles. It can reduce your



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operations "command" area to a single seat for multiple consoles that are displayed as open windows or icons in a GUI. Systems in remote locations can be included in the Vantage network. Any combination of HP 3000, 9000 or 1000 systems is supported. Other resources such as non-HP systems, LAN servers, data switches and PBX systems may be included.

Vantage monitors console data streams to identify strings of characters or events the user defines. When an event is recognized it is trapped by Vantage and action is taken based on parameters set by the user.

Vantage's Console Access Technology (CAT) provides the capability to accomplish remote system shutdown, restart and software updates through character-based dial-up or network access.

Contact U.S. Holland House, P.O. Box 91027, Austin, TX 78709-1027; (512) 288-7540.

Circle 376 on reader card

CCC/Manager Offers Software Configuration Management

Softool Corp. announced CCC/Manager, a software configuration management product now available on Silicon Graphics workstations and servers.

Features of CCC/Manager include change auditing and version fall-back for all software components, automated support of any number of stages in the software life cycle without physical duplication, management of multiple releases and baselines, support for parallel development, and merging of multiple changes to the same component.

Contact Softool Corp., 340 S. Kellogg Ave., Goleta, CA 93117; (805) 683-5777.

Circle 382 on reader card

WRQ Introduces Reflection Upgrade

Walker Richer & Quinn Inc (WRQ) shipped an upgrade of its Reflection 1 and Reflection 7 DOS-based terminal emulators.

The new version includes: advanced connection management capabilities; DOS 5.0 support; significant memory savings; modem dialer; dynamic keyboard mapping help; full HP 2397A support in Reflection 7; and enhanced 132-column support.

Reflection 1 emulates HP text terminals, and Reflection 7 provides HP color graphics terminal emulation.

When running with version 2.0 of the

Reflection Network Series, the enhanced release of Reflection 1 and Reflection 7 offers users an easy way to manage multiple connections to different host computers. A new feature called Connection Manager automatically selects the networking protocol required for establishing a session with a particular host. You no longer have to specify the correct transport.

The Connection Manager screen shows you how many host sessions are running and how many are available. A hot key lets you move from session to session. The state save feature in Reflection preserves each host connection and the screen that you last saw.

Price of a single copy of Reflection 1 is \$299 and Reflection 7 is \$399.

Contact WRQ, 2815 Eastlake Ave. East, Seattle, WA; (206) 324-0407.

Circle 389 on reader card

PeopleSoft Offers PS/Forum Bulletin Board Service

PeopleSoft Inc. announced PS/Forum, a bulletin board and conferencing tool based on Lotus Notes groupware.

Customers can use PS/Forum to communicate amongst themselves, as well as with PeopleSoft employees, about their PS/HRMS and PeopleSoft Financial applications. PS/Forum comprises three databases: Discussion/Special Interest Groups, News/Information and Updates/Fixes.

Discussion/Special Interest Groups is a traditional read-and-write bulletin board capability. News/Information is a read-only database comprising information posted by PeopleSoft Product Support and Development groups on product release dates, training schedules and upcoming meetings. Updates/Fixes is a read-only database that customers use to view and download product release information and documentation changes.

Contact PeopleSoft Inc., 1331 North California Blvd., Walnut Creek, CA 94596; (510) 946-9460.

Circle 396 on reader card

ANSI C Development Tools Available On HP 9000/700

Microtec Research Inc. announced its Motorola 680x0, Hitachi H8/300, H8/500 and GMICRO microprocessor development tools on the HP Apollo 9000 Series 700 workstations.

Microtec Research products from a

development system for creating microprocessor applications. They include the XRAY Debugger, Optimizing ANSI C Cross Compiler and Macro Cross Assembler. The XRAY Debugger on the HP 9000 Series 700 supports instruction set simulation as an execution environment, which allows users to develop and debug their software before the prototype hardware is available. I/O and interrupts also can be simulated and the performance analysis and code coverage features allow users to understand software performance and evaluate testing procedures early in the software development process.

Contact Microtec Research Inc., 2350 Mission College Blvd., Santa Clara, CA 95054; (408) 980-1300.

Circle 380 on reader card

R Squared Presents Disk Arrays For UNIX Environment

R Squared announced a complete line of disk arrays, integrated to support HP, Sun Microsystems, IBM RS/6000 and Silicon Graphics workstations.

Disk arrays are mass storage devices that hold from two to 40 high-capacity disk drives and support a fast SCSI-2 connection through a single-card adaptor or through direct connections on the workstation's existing SCSI port. The devices offer increased I/O throughput, improved data integrity and higher storage capacities. Disk arrays achieve higher I/O performance as a result of their parallel architecture. Disk arrays provide high capacities - up to 630 GB - yet require one SCSI address. They are designed to arrange several physical disks so that it appears to the workstation as one logical disk. The products range in price from \$10,000 to \$43,000.

Contact R Squared, 11211 E. Arapahoe Rd., Suite 200, Englewood, CO 80112; (303) 799-9292.

Circle 385 on reader card

X-OVER Converts 9-Track Tape

Bering announced the X-OVER utility for HP 3000 computers.

X-OVER converts 9-track 6250 bpi tape reels to compact DDS/DAT or 8mm tape cartridges. X-OVER quickly and efficiently copies Native Mode or Compatibility Mode store tapes from multiple reel 9-track tapes to multiple DDS/DAT or 8mm tape cartridges. The software utility reads and decodes NM and CM store tapes and then reconstructs

them on a single tape cartridge. Store up to nine 2,400 foot 6250 bpi tape reels or 27 1600 bpi tape reels on a single DDS/DAT cartridge and up to 20 reels on 5.0 GB 8mm tape cartridges. X-OVER is supported on Bering's ECHO DDS/DAT and 8mm tape drive subsystems on HP 3000 with MPEV or MPEXL. The software also supports HP tape drives.

X-OVER is sold separately or bundled with Bering's ECHO DDS/DAT or 8mm tape drive subsystems. The price for X-OVER with a single installation license is \$1,495.

Contact Bering Industries, 246 East Hacienda Avenue, Campbell, CA 95008; (408) 379-6900.

Circle 379 on reader card

NetMail/3000 Enables Internet Link

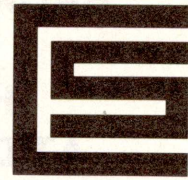
3k Associates announced the NetMail/3000 electronic mail package for the HP 3000.

Designed to use the Internet mail (SMTP) standard, NetMail/3000 runs on all HP 3000 systems (classic and XL/iX) and comes with a standard message transfer agent (MTA) that supports SMTP mail transfers. HP 3000s using NetMail/3000 can not only exchange mail with other HP 3000s, but also with UNIX systems (including HP 9000, Sun, VAX and IBM) as well as any other system that supports the SMTP mail standard. Through the Internet, NetMail/3000 can access SprintMail, MCI Mail, CompuServe, Bitnet, Appellink, Fidonet and Telemail.

NetMail/3000 supports store-and-forward of mail, automatic forwarding, mailing or distribution lists, support for mail-enabled applications, primary, carbon copy and blind carbon copy mail recipients, immediate mail delivery notification (configurable), unique mailboxes among users sharing the same MPE user and account, and an easily maintained mail directory with an interactive maintenance module. The NetMail/3000 user interface also supports HP's Native Language facility. For networked users, NetMail/3000 supports any NS/3000 network link (point-to-point, LAN, X.25, or X.25-DDN). For single-system users, NetMail/3000 provides an affordable and powerful local mailing system, even without NS/3000.

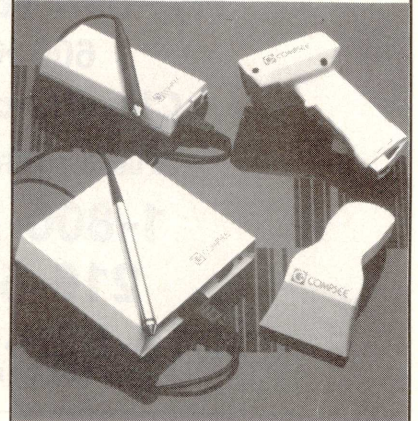
Contact 3k Associates, P.O. Box 5812, Springfield, VA 22150-5812; (703) 569-9189.

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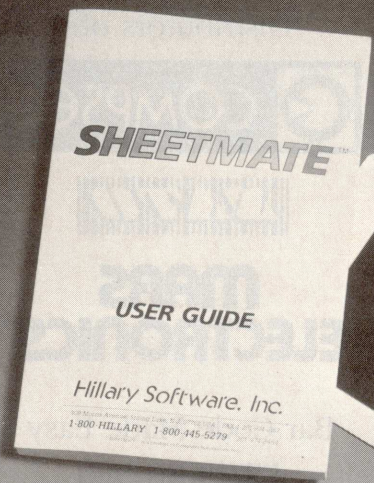
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CIRCLE 486 ON READER CARD

**Infotek Offers Memory For HP
Apollo 700 Model 705 & 710**

Infotek Systems announced memory upgrades for the HP Apollo Series 700, Model 705 and 710.

The EM705 and EM710 memory modules are available in 16- and 32-MB capacity sets. Each set consists of four separate boards which must be installed together. The sets can be installed into memory expansion slots on the processor boards to bring the computers to their maximum allowable memory configurations of 64 MB in 8 memory slots. The new boards are based around industry-standard 4-megabit chips and allow for Error Checking and Correcting. The 16-MB set is priced at \$2,700. The 32-MB set is priced at \$5,500.

Contact Infotek Systems, 625 S. Lincoln, Suite 204, Steamboat Springs, CO 80487; (303) 879-1184.

Circle 381 on reader card

**ISA and Texas ISA Announce
Supported Memory Boards**

ISA Co. Ltd. and Texas ISA Inc. announced the next supported line of memory boards — the EX-2800, EX-2900 and the EX-3100 series memory kits.

The HP 9000/8x7 or HP 3000/9x7 costs \$3,000 with 32 MB, and \$6,000 with 64 MB. The HP 9000/750 costs \$2,640 with 32 MB, and \$4,800 with 64 MB. The HP 9000/705 and 710 costs \$1,100 with 16 MB, and \$2,200 with 32 MB.

Contact Texas ISA Inc., 14825 St. Mary's Ln., Ste. 208, Houston, TX 77079; (713) 493-9942.

Circle 378 on reader card

**HI-COMP Announces
HIBACK Enhancements**

HI-COMP America Inc. and HI-COMP Hinrichs GmbH, Hamburg, Germany, announced several enhancements to HIBACK, its network multi-operating system backup and archival software.

A version of HIBACK now runs on SCO UNIX platforms. It contains the full functionality of all UNIX versions. HIBACK also will backup or archive RAW DISC partitions. This allows users, for example, to backup databases running on RAW DISC.

HIBACK will now transfer savefiles

HP PROFESSIONAL

directly from re-writable optical disk to serial media, without being written to hard disk. This greatly simplifies, and allows automation of, data archiving. It also increases the efficiency with which the re-writable optical disk can be used.

HIBACK will backup in series to peripheral devices (DAT, tape, cartridge or optical disk) anywhere on the network.

See Hi-Comp at Interex User Conference booth #329, 428.

Contact HI-COMP America, 419 Canyon Ave., Ste. 215, Fort Collins, CA 80521-2670; (303) 224-9700.

Circle 400 on reader card

SLM Introduces TAG For HP 3000s

Straight Line Methodology Inc. (SLM) released its Multi-Lingual Turbo Applications Generator (TAG). SLM's TAG/3000 offers an easy and affordable HP solution for generating application source code in the language of your choice, or for migrating from language to language.

TAG/300 generates Vplus forms, Application Ready Buffers and Application Source Code for on-line transaction processing (OLTP), and on-line/off-line reporting, from a database object, in the languages of: C, SPL, SPLash!, COBOL, Pascal, FORTRAN and TRANSACT.

SLM's TAB Turbo charges your 3GLs and allows the use of 4GL concepts and techniques even on current 3GLs. SLM's TAG can accept data declarations from IMAGE/3000, Dictionary/3000 or a combination of Vplus/3000 and IMAGE/3000.

Contact SLM Software Inc., 141 Edenvale Rd., Rock Hill, SC 29730; (803) 328-9063.

Circle 377 on reader card

MathSoft Unveils Mathcad 3.1 For UNIX Platforms

MathSoft Inc. announced the Mathcad 3.1 innovative calculation tool will be available on HP, Sun, IBM, Digital, Intergraph and Silicon Graphics workstations under the Motif and OPEN LOOK window managers.

Mathcad 3.1 supports all the popular features of Motif and OPEN LOOK window managers and has multiprocessing functionality that allows multiple active Mathcad documents to be open and available for editing and computing simultaneously. Mathcad allows users to write equations in

typeset notation onscreen and get calculated results as numbers or graphics. Mathcad 3.1 also offers users the means of performing symbolic calculations for computer algebra. Users can perform symbolic derivations by selecting from a Mathcad menu to simplify formulas, expand or factor polynomials, and differentiate and integrate symbolically. Mathcad 3.1 has over 200 built-in functions and offers new features including vector and matrix handling of up to 8 million elements, license manager for direct installation on a network, and color surface plots and linear and logs graphs. UNIX Mathcad retails for \$695 for single node or standalone versions. Contact MathSoft Inc., 201 Broadway, Cambridge, MA 02139; (617) 577-1017.

Circle 387 on reader card

Proactive Systems Shows Products At Interex

Proactive Systems plans to show several of its products at Interex Conference in New Orleans.

Fantasia, a laser printing solution is now available on HP-UX as well as HP 3000 systems. Forms can be designated with the FANTASIA PC WYSIWYG module and moved between the different environments if you have both types of equipment. A migration option is also available for HP 2680 printer users when you move to the HP 5000 model printers.

FLEXIBASE/SQL makes the managing of HP ALLBASE/SQL easier and the latest version provides an easy-to-use MS-Windows interface to save you typing SQL commands, comprehensive capacity management, easy copying DBEnvironments and the ability to optimize performance by rebuilding indicos.

BACKBONE supports transparent access to remote KSAM and MPE files in addition to IMAGE database and also supports data replications. In addition you can now transparently access an IMAGE database on an HP 3000 system from an HP-UX system. Contact Proactive Systems, Four Main St., Los Altos, CA 94022; (415) 949-9100.

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*Communications interface uses PPL from Walker Richer and Quinn. All products are trademarks of their respective companies.

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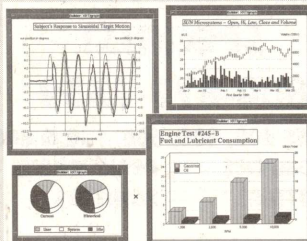
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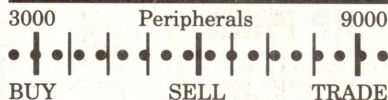
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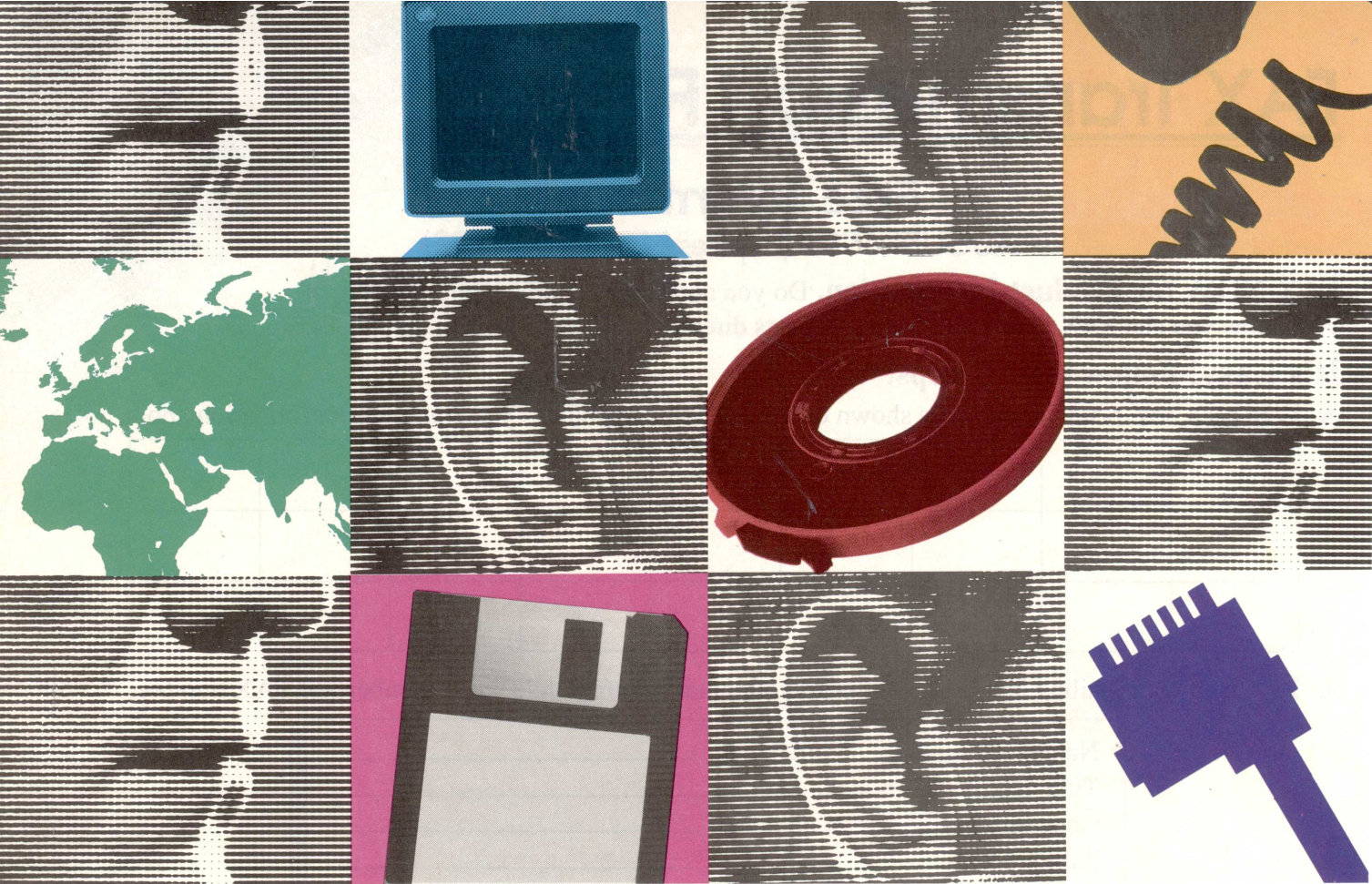
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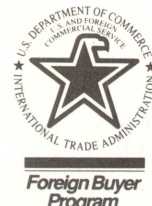
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Editorial Focus -- Client-Server Computing

Scheduled Features*:

- **Are we there yet?** — Last year, the major vendors of HP accounting software announced their intentions to develop client-server applications. Lynn Haber surveys the market to see who made it there -- and how.
- **Fault Tolerant Systems** by *Bill Sharp* — HP's new 9000 1210 is the fastest entry-level UNIX-based, fault tolerant computer in the industry. The pending introduction of PA-RISC-based fault tolerant systems could make HP a major player in this fast-growing market segment
- **tributed OTLP** by *Gordon McLachlan* — Thanks to the growing acceptance of client-server technology, OLTP — once the exclusive province of centralized mainframes — is leaving the glass house behind in favor of distributed databases on wide-area networks.

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That whenever any IS department becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new standards. Prudence, indeed, will dictate that standards long established should not be changed for light and transient causes; and accordingly all experience hath shown, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such standards.

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For suspending our own Programmers, and declaring themselves invested with power to code for us in all cases whatsoever.

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In every stage of these Oppressions We have Petitioned for Redress in the most humble terms: Our repeated Petitions have been answered only by repeated injury. A Director, whose character is thus marked by every act which may define a Tyrant, is unfit to be the manager of a free people.

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We, therefore, the Representatives of the Departments of the Corporation, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, solemnly publish and declare, That these Departments are, and of Right ought to be Free and Independent; that they are Absolved from all Allegiance to the IS Department, and that as Free and Independent Departments, they have full Power to develop Systems, contract Vendor Alliances, establish Commerce, and to do all other Acts and Things which Independent Departments may of right do. And for the support of this Declaration, with a firm reliance on the Protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor. ■



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